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ABSTRACT This book contains the formal papers that were presented at the 1968 convention of the International Reading Association. The papers discuss aspects of the following reading areas: reading instruction and materials, the curriculum in reading, reading organization, teacher education, research evaluation and reports, and issues in reading on the international scene. (RL)

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READING AND REALISM

J. ALLEN FIGUREL, *Editor*

Indiana University Northwest

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Foreword

THE TOPIC of the thirteenth annual convention was "Reading in the Total School Curriculum" and many segments of the program were planned to carry out the intent of the theme. As I reviewed the papers in this volume on which the presentations were based, it occurred to me that a better title for the proceedings itself would be "Reading and Realism." Granted, all of the papers do not meet the criterion of *realism*, but many have attempted to cope with the actual problems of today rather than yesterday or the theoretical world of make-believe.

All of us concerned with helping the learner achieve reading power commensurate with his ability and his needs must continuously strive to view the reading processes in relation to the pragmatic environment in which the learner lives. We must synthesize new knowledge with the old, but also be willing to discard either the old or the new, if one is found wanting. I have no sympathy with the research worker in the discipline called reading, or indeed communication, who is unwilling to assume some type of responsibility for relating his findings, conclusions, and implications to the practical classroom setting.

I hope a number of the papers in this volume will prove to have such practicality either in terms of the specific suggestions stated or in stimulating critical and creative thinking based on the ideas presented. For aside from occasional flights into the wonderful world of fantasy, the reader is concerned essentially with reading as a functional activity permitting him to achieve realistic goals.

We are all indebted not only this year but for the past eleven years to Dr. J. Allen Figurel for his masterful accomplishment of editing the annual convention proceedings. The task has grown more monumental each year, and yet the increased quantity of material has only resulted in increased quality of editing. Dr. Figurel retires from his position as editor of Part 1 of the convention proceedings as IRA experiments with a new format for 1969. IRA shall, of course, always call on Dr. Figurel for his excellent counsel. He has made an outstanding contribution to the development of the International Reading Association. We applaud him for his dedicated and superior service.

H. ALAN ROBINSON, *President*
International Reading Association
1967-1968

THE INTERNATIONAL READING ASSOCIATION came into being January 1, 1956, through the merger of the International Council for the Improvement of Reading Instruction and the National Association for Remedial Teaching. It is a professional organization for individuals and groups who are genuinely concerned with the improvement of reading programs—both developmental and remedial, for children and adults—and with providing adequate guidance in all situations in which reading serves as a vital aid to learning.

The Association publishes three professional membership journals. *The Reading Teacher* and the *Journal of Reading* are published eight times a year—October through May. *The Reading Teacher* is a publication devoted to all aspects of reading at the elementary school level; the *Journal of Reading* is concerned with the improvement of reading programs in high schools and at the college and adult levels. *Reading Research Quarterly* is issued each year in fall, winter, spring, and summer and is a scholarly journal concerned with experimental research and theoretical speculation in reading and related areas.

Membership is open to all persons engaged in the teaching or supervision of reading at any school level, to parents, and to other persons interested in the purposes of the Association. Members and council affiliates represent all fifty of the United States and many nations, such as Australia, Canada, England, Germany, New Zealand, Nigeria, Japan, Denmark, and others. For complete information about membership in the Association and subscriptions to IRA journals write to Dr. Ralph C. Staiger, Executive Secretary-Treasurer, International Reading Association, Six Tyre Avenue, Newark, Delaware 19711.

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The International Reading Association attempts, through its publications, to provide a forum for a wide spectrum of opinion on reading. This policy permits divergent viewpoints without assuming the endorsement of the Association.

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READING AND REALISM is Part 1 of the thirteenth annual proceedings of the International Reading Association. In previous IRA proceedings, hundreds of papers on every facet of reading and reading education have appeared. A roster of past authors would comprise a "Who's Who" in reading. Each volume has brought forth divergent but, nevertheless, important viewpoints, often accompanied by significant research studies. By far the greatest number of contributions came from classroom teachers. The result was that each volume was a compendium of the most up-to-date theories, practices, and procedures for each year.

As the annual programs of IRA expanded to meet the needs of its ever growing membership, so did the annual proceedings, a growth of from less than 200 pages in the first (1956) volume, to 912 pages in this Part 1 of the thirteenth (1968) annual proceedings volume—and this in spite of the fact that three smaller publications covering special interest areas have been published separately as Parts 2, 3, and 4 of the 1968 Proceedings. When volumes get too big they become impractical, especially from the point of view of costs.

Reading and Realism contains only the formal papers presented at IRA's Boston Convention which was held April 24-27, 1968. Lack of space has prohibited the publication of the papers of discussants and reactors. Areas covered by this publication include the following: reading instruction and materials, the curriculum in reading, reading organization, preservice and inservice education of teachers of reading, research evaluation and reports, and issues in reading on the international scene. Three smaller publications comprise Volume 13: *Current Issues in Reading*, edited by Nila Banton Smith; *Reading Disability and Perception*, edited by George D. Spache; and *Reading Evaluation*, edited by Dorothy DeBoer.

The editor has enjoyed planning and editing the last eleven volumes of the series. He feels he has profited much from this activity and wishes to express his appreciation and thanks to the past and present officers of the Association, Headquarters staff members, and thousands of teachers and college educators who have made the publication of the volumes possible.

J. ALLEN FIGUREL
Editor

FEATURED ADDRESSES

Reading in the Total School Curriculum

H. ALAN ROBINSON
Hofstra University

ON THE OPENING PAGE of his exciting and frightening book, *The Dynamics of Change*, Don Fabun (5) uses the following brief tale as an introduction. I have taken the liberty of doing the same:

At exactly 5:13 a.m., the 18th of April, 1906, a cow was standing somewhere between the main barn and the milking shed on the old Shafter Ranch in California, minding her own business. Suddenly, the earth shook, the skies trembled, and when it was all over, there was nothing showing of the cow above ground—but a bit of her tail sticking up. For the student of change, the Shafter cow is a sort of symbol of our times. She stood quietly enough, thinking such gentle thoughts as cows are likely to have, while huge forces outside her ken built up all around her and—within a minute—discharged it all at once in a great movement that changed the configuration of the earth, and destroyed a city, and swallowed her up. And that's what we are going to talk about now; how, if we do not learn to understand and guide the great forces of change at work on our world today, we may find ourselves like the Shafter cow, swallowed up by vast upheavals in our way of life—quite early some morning.

The learners of today and, indeed, tomorrow may well be attempting to cope with forces outside *our* ken or range of understanding. Hence, our task as educators specifically concerned with the reading process must be that of assisting students to become potent, independent readers as much at home as possible with the reading matter confronting them in the many disciplines.

We cannot settle for the teaching of

reading skills or attitudes during only one or two segments of our school day. We cannot settle, even, for the augmented concept of teaching a common body of skills during reading period and then applying them in the content areas. We can only settle for the reality of having reading instruction, along with all of the other communication tools, integrated throughout the total school curriculum.

Skills and attitudes

Reading (as viewing and observing, listening, speaking, and writing) is a process, not a subject. It has no content of its own. It may be considered a subject by the learner who is at-researchers who are studying the process itself, but it cannot be considered a subject by the learner who is attempting to put it to use in unlocking the ideas of a given discipline. Although a brief segment of the primary school curriculum focuses on *reading* as such in order to help learners make the transition from spoken to written language, the bulk of the school curriculum at all levels must emphasize the acquisition of the ability to read the multivariated materials confronting the learner in his society.

An examination of past and existing reading programs makes one aware of the fact that, typically, the "reading program" is considered an entity and viewed as another part of the curriculum in juxtaposition to the social stud-

ies program, the math program, the science program. In some school situations, teachers have been encouraged to "apply" the reading skills in the content areas. But only in rare cases has the reading program encompassed the total school curriculum, where reading skills have been introduced, taught, and reinforced in their most appropriate environments—where they are immediately needed in order to best understand the message of the author and, perhaps, to evaluate it.

It appears we have assumed that if a particular reading skill is taught in one situation, it can be applied by the learner in all other situations. And yet, psychological research reveals that the " . . . similarity between the original and transfer tasks is a major factor in influencing the degree of transfer of learning. In general, the greater the degree of similarity between the two tasks, the greater the amount of positive transfer obtained" (4).

There appears to be a vast difference between the skill of inference-making in the narrative discourse of a basal reader or anthology and the expository discourse of a scientific treatise, for example. Aside from the authors' patterns of writing differing from reading assignment to reading assignment, it may even be valid to assume that the skills called common skills, such as inference-making, differ in nature, depending upon the type of writing to which they are applied.

Consider, as an example, the skill of critical reading. The very word *skill* applied to this term is probably a misnomer; for it is, in all probability, a thinking process activated by a large cluster of subskills. President-elect Helen Huus states that "critical reading requires the evaluation of the material, comparing it with known standards and norms, and concluding or acting upon the judgment" (7).

We all agree, I am sure, that learners in this changing, complex so-

ciety must attempt to read critically and that teachers must learn how to help them do so. If the reading program is considered to be a vast array of skills and attitudes forming an intertwined network throughout the disciplines represented in a curriculum, the teacher doesn't have to try to teach and the learner doesn't have to learn something called *critical reading* at one given point in time. In a compartmentalized program the teacher can plot the teaching of the ability to read critically across a multitude of disciplines throughout the school day. In a departmentalized situation—certainly more complex to implement—a group of teachers will need to plan together in order to permit the learner to engage in a broad spectrum of activities which may result in his ability to read critically. The host of other reading skills, too, can be plotted in like manner across the total school curriculum.

There is no one sequence of skills. Research in the field of reading has never demonstrated the existence of a specific sequence or, in fact, has it ever shown the superiority of one sequence over another sequence. Developmental reading programs have been created (particularly the sequence of skill development) through the logical thinking of educators experienced in the field. Such logical and creative thinking can also help us place the reading skills throughout the total school curriculum in problem-solving sequences until adequate research in our field provides conclusive answers. The developmental reading program could be considered the complete set of reading skills and attitudes needed in order to contend with all of the materials to be read by each student during his school career. Those who say, "Well, what's new about this; this is what we believe," will have to make the movement from theoretical framework to implementation.

If we are to assist our charges in

contending with the world of change, it is essential that we provide a communications program which will permeate the total school curriculum. Each new piece of instructional material must be subjected to careful scrutiny in relation to such questions as, "How can I help each reader, who must interact with this material, carry on a fruitful dialogue with the authors? What can I do to give each reader the power to evaluate the results of his dialogue?" Obviously such questions are of significance throughout the curriculum as materials are read, studied, and analyzed in a broad variety of disciplines. Obviously skills and attitudes will change in relation to the demands of the teacher and the learner and to the nature of the materials.

Learners and materials

We are confronted today with a multitude of learners who wait to and must interact with society now. They cannot wait for tomorrow. And, perhaps more important, they cannot and must not be cheated by an educational system, unequipped, unready, and sometimes unwilling to change. Mousing such phrases as "meeting individual differences" and "take the child where he is" means nothing to the learner who sits in a reading group called the *Bluebirds* or in a history class where "read and discuss the chapter" is the constant assignment.

As John H. Fischer, president of Teachers College, Columbia, has said, "We are reluctant to face the truth that the nature of our communities and the forces that affect them have changed much more rapidly than our readiness either to recognize the changes or to respond to them. This is not the first time in human experience that preoccupation with old assumptions has diverted attention from new facts, but the nostalgia and inertia we exhibit regarding the operation of schools differ

sharply from our attitude toward other institutions" (6).

The learners of today need to face realism *within* the classroom, not only outside of it. We cannot continue to "play at" learning. Methods and materials must be utilized to come to grips with the actual needs of the individuals sitting in classrooms.

On the broad horizon we must continuously and actively put pressure on schools, school systems, counties, and states to discontinue the practice of adopting a given text for a given level for all students in its jurisdiction. We must work toward matching the materials of instruction to the present abilities of youngsters. But also we must work toward matching the content of the materials of instruction to the ego-needs, the community-needs, the work-needs, and the interests of those youngsters. We must work toward the goal of an active and well-stocked library or communications center in each school staffed by librarians who are child- and life-oriented in contrast to a traditional book-orientation.

It is imperative that we read and interpret some of the present research directed toward "how children learn" so we may differentiate instruction with regard for the methods the learner finds most beneficial. If we cannot do this work on our own, a member of the school or school system staff should be obligated to help. Actual attention to the differing ways individuals learn, with suitable instruction planned to consider such differences, forces us to abandon the three-group method as *the way* of teaching reading. Planning must encompass a wide number of approaches utilizing those procedures and materials most suitable for particular learners.

The nature of instruction and of the materials used in instruction must be dedicated toward developing citizens who not only respect themselves and those about them but also have experi-

enced the reading of varied materials (often controversial) and are unwilling to accept any set of principles on face value. They must become citizens who, after understanding the message of an author, raise questions, disagree, agree, view the message in light of their experience, and place the message within the framework of what they know of the present and what they may expect of the future.

Chase speaks of a higher literacy, beyond the level of simple comprehension of a message, toward the use of what we read in sharpening our "perception of the world about us and the people who inhabit it: the power to comprehend the mathematical and scientific concepts and modes of inquiry which are reshaping the modern world; the capacity to enter understandingly and appreciatively into values, modes of behavior, and points of view arising in cultures different from our own; a willingness to consider ideas even when they seem threatening to cherished beliefs or vested interests; a disposition to carry on steadily, through reading and other channels, inquiries directed toward the extension of knowledge and the cultivation of understanding" (1).

Adherence to the idea that reading instruction is conducted at one time or two times during the day with one or two sets of materials and some supplementary readers will not help develop higher literates. As Chase also says, "We can no longer settle for an attempt to develop the higher literacy only in persons for whom the doors of learning are opened wide by favorable early environment. In the future these powers and these values will be made available on equitable terms to all, or they may not for long be available to any" (2). Chase made this statement in 1961. We accept it and endorse it in 1968. But its implementation has hardly begun.

Many educators are on the immedi-

ate firing line. They may agree that all of these things should be done and that they should have a role in doing them. But, most important of all, they want to know what to do right now. Bright and experienced people are wrestling with such serious problems and are finding answers difficult. Solutions are not at hand; but I do have a few suggestions which could be implemented:

1. Place emphasis on prevention rather than remediation. Begin helping the child who evidences problems when the problems are first noted—nursery school, kindergarten, or grade one. Call it "remediation" if that means is the only way to obtain funds.

2. Don't broaden the remedial program if it appears to encompass more than one third of a school's population; in these cases the term *remedial reading* makes no sense. Put available funds to work in curriculum changes (again, calling it "remedial reading" if this is essential).

3. If a remedial reading program is servicing a portion of the school population on a time schedule such as two, three, or five periods a week, twenty minutes to an hour in duration, don't accept the cliché "take the child where he is" without more serious consideration. If a child goes back to situations in classrooms where he is expected to attempt to read materials beyond the reading level assigned to him by the reading teacher, he needs more assistance than just working on grade level. "Taking him where he is" must refer to his total place in the school society. A dichotomy between the remedial program and classroom programs must not exist. The retarded reader must be helped to at least contend partially with the ideas he is meeting in the reading materials of the classroom. Work with him on needed skills, yes, but also help him achieve some small measure of success in his classroom. Find easy-to-read books that will give

him some background in the concepts dealt with in his classroom or classrooms. Work on the vocabulary and, indeed, some of the patterns of writing he is meeting in the more complex materials. Certainly this approach is not perfect—the total curriculum should be suited to the learner's needs, but until that time don't just confront him with workbook exercises on skills separated from the realism of the rest of the curriculum.

4. If only one textbook *must* be used by all, differentiate assignments. Each learner doesn't have to read the same material. Permit the retarded reader to study pictures, charts, and graphs, or small portions of text with a definite purpose or purposes in mind. Don't have other members of the class read the same information but have them read parts of an assignment for a variety of other purposes. In the ensuing discussion the retarded reader will have a vital part to play in presenting his information and will also be able to learn from the oral reports of others.

5. Encourage the reading specialist, when one is present, to work with the classroom teacher in team-teaching situations whenever feasible. This combination will permit skill application to the immediate needs of the curriculum.

6. Avoid assuming, and particularly stating over and over again to students, that reading is the most important tool of learning for all, for it may not be so, and is probably not so, for many individuals. Do, though, demonstrate the importance of reading in numerous situations by bringing in and permitting many types of reading materials in the classroom. Set up and encourage reading for a multitude of purposes. Some students think that reading is only essential to please the teacher and get the assignment done.

7. Don't talk about the joys of reading, demonstrate them. Bring a book you're reading to school. Read it from time to time so students may ob-

serve. Laugh, cry, and talk about it. Let the teacher be a visible model to emulate.

Teachers and teacher education

There are undoubtedly a variety of techniques and uses of materials that teachers have worked out—particularly teachers in large urban areas facing situations unlike those reported in their professional textbooks or dealt with in university classes. The saddest scene, however, is to observe those teachers who work in the midst of a changed environment but don't recognize it—who go on trying to do what they have learned and, in the face of failure, blame their failure on the learners.

In actuality the blame must be placed most fully on the shoulders of the trainers of teachers in colleges and universities who explore reading theory and teach approaches of the past without regard for the present, who have not themselves been inside a classroom for the past five or ten years. But also the blame must fall on the schools themselves, schools involved in the current scene but schools which are doing little to change the teaching behaviors of their inadequately prepared teachers.

Perhaps Davies overdramatizes in his presentation of the problem, but he certainly reflects truth about teacher education in general when he says,

Teacher education is the slum of American education. It is a slum because it is characterized by neglect, poverty, isolation, alienation, exploitation, lack of status, and insecurity. Teacher education is in trouble, just as slums are in trouble, because not enough influential institutions or agencies or individuals take it seriously or care enough about it to take positive action. The scholars don't; the graduate schools don't; school systems don't; the colleges don't; the state legislatures don't; the teacher organizations don't; the Office of Education doesn't. Our society simply hasn't been willing yet to devote adequate intellectual and monetary resources to the task of developing high quality personnel for our schools. To-

day there is the possibility that the slum can be transformed. The opportunity for renewal and reform and rejuvenation is here (3).

There are positive trends today. The scholars and the graduate schools are turning toward the kind of research which may serve practicably in coping with individual differences if the results of the research can be implemented rapidly enough. The colleges, state departments of education, and school systems in given states are beginning to face the problems of teacher education by scheduling colloquies on the topic. Our government has recognized the gravity of the situation by passing a new act which places complete emphasis on funding proposals directed toward the training of teachers, particularly those who will work in urban areas.

Steps we might take

1. Every teacher of a reading or language arts methods course must pay periodic visits to the schools in which his teacher-students are employed, or at least in schools similar to those serviced by his students. Better yet, he should become involved in some type of project with one or more of the schools so he may have a continuing and fairly deep involvement. He should then take a careful look at his course of study in relation to his actual observations. Changes in the course of study should then be executed, preferably with consultation services from some of the most expert teachers and supervisors in the schools visited. This advice is directed toward noted reading authorities as well as the neophyte to the field. Old cliches are too often offered to earnest teachers who deserve better responses.

2. Let the time arrive when teachers of reading methods courses team up with teachers of methods courses in science, mathematics, social studies, and other subjects to help students learn not only the teaching of a discipline,

but also the procedures for helping learners cope with the reading of the various materials used. One of the reasons for the lack of reality in helping students meet the reading needs of the varied disciplines is that teachers themselves have never been consciously confronted with the specific reading tasks needed in given types of discourse. And this type of education must be ongoing both in graduate level courses and in the school system because materials are changing in nature at a rapid pace. The reading skills the high school student needed in dealing with the chemistry textbook of even five years ago are much different from those needed today.

3. Student teaching experiences should be developed during the freshman year of college and continued each year during the total college period. Just as we suggest that the college professor must be a part of the school setting, we must insist that the graduate has had many real experiences in schools before selling his wares. Even if we find much attrition from freshman year through senior year, the experiences will be worthwhile. Those students who do not eventually become teachers will still profit from their classroom visits. Undoubtedly the academic learning in the college courses will be enhanced when coupled with a multitude of observations and teaching experiences directly within the school setting over a period of years.

4. We must encourage dialogues followed by action among those teacher educators most deeply concerned in a given community, county, region, province, or state. IRA has taken some giant steps in this direction by concentrating of late on building strong state reading organizations. Some of these organizations have already been instrumental in bringing together the important forces in reading instruction. Right now there are departments of education, teacher education institu-

tions, and representatives of many of the school systems in the state sitting down to discuss how to improve teacher education in reading both at the preservice and in-service levels, both within the college and university and within the school systems themselves.

5. School systems must begin to revise their schedules so teachers are permitted to become involved in in-service work and group planning with greater frequency. Such work should be scheduled during a teacher's work day rather than after it when understandable fatigue sets in. It is not inconceivable (and in fact it is being accomplished in some places) that in-service activities are part of the daily schedule. Certainly school systems should capitalize on Saturdays and summers as appropriate times for compensated endeavor. The nature of in-service activities, too, must change from the very broad and general to the specific if we are to make changes in teaching behavior. Inviting an authority to talk to a faculty may be satisfactory as an initial step, but it can't be the beginning, middle, and end or it serves little purpose. Teachers must be helped to describe an instructional problem which can be solved through a series of operations. For example, classroom diagnosis as a topic for an in-service program is much too broad a concept. But focusing on *grasping the main idea* as an important skill in reading social studies materials and then helping teachers develop informal tools to evaluate the learner's ability to grasp some main ideas are feasible. The teacher at first may need to learn just what the skill is and why it is important. But such enlightenment must be followed by the development of the actual tool, trials in the classroom setting, evaluation of the tool and the trials, and revision if necessary.

6. The facilities used for in-service programs need vast improvement.

With the types of programs being offered today and the many that will arrive in the close tomorrow, the teacher-students must be able to manipulate materials, see and take part in demonstrations, and have time to try out ideas. With programed materials and large systems approaches, in-service education must stress actual involvement—that is, the environment must be suitable for the activity. Very few modern programs can be demonstrated in a room minus electrical outlets.

Reading in the total school curriculum is difficult to achieve. It is difficult because a program across a network of disciplines involves the careful planning and expertise of numerous people. It is difficult because the curriculum, as well as the materials used within the curriculum, must not be the same for all learners. But just as the content of the curricula must change to satisfy the needs of each student, so must we help each obtain and polish the tools essential for unlocking the ideas presented in print.

Change is inevitable. We must change to keep pace with the times, as difficult as the path may seem. We are obligated, by our very calling, to urge and abet change in students. We are obligated to accept all students on equal terms. We are obligated to help, with the best of our ability, prepare students for the world which none of us can foresee with much accuracy. One thing is certain, however, the field of speciality-communication will continue to be the most important and, perhaps, most complex aspect of human development.

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The Year Ahead in IRA

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LOOKING TO THE YEAR AHEAD one does not need to be a Nostradamus to realize that this is indeed a time of challenge and opportunity for the IRA as well as for the entire teaching profession. Fortunately, over the past several years the Association has increased its participation in upgrading the educational endeavors of the various nations represented in its membership through its expanding publications program, conventions, world congresses, and vast range of other activities. With such a firm momentum already established, we enter the forthcoming year with full confidence that the International Reading Association is ready to accept the challenges facing it. Not only are we ready to accept them but, in fact, view them as opportunities for the Association to grow even more effective in its basic role of providing service and leadership in the area of reading.

Hence, the theme for next year will be "Challenges and Opportunities in Reading." By searching out challenges and making opportunities of them, the Association will be able to play a significantly more active role in giving direction to educational practice.

This is a lofty goal. To relate it to reality one must first look at the factors within the Association that are essential if the Association is indeed to extend its influence. As in any profes-

sional organization, IRA's strength rests in its people—that is, in its membership, in the quality of its administration, and in the quality and range of its services. The remainder of this report is organized around these three factors.

Membership

At present, IRA has approximately 55,000 members and subscribers. More than 52,000 of these are in the United States, and approximately 2,500 are in Canada and other countries. In addition, reading associations of the United Kingdom, France, the Scandinavian countries, Japan, and Israel are affiliated with IRA. Within the United States and Canada, members affiliate with local and regional councils which provide strong local ties as well. One very plausible explanation for the phenomenal membership growth of IRA is the grass roots nature of local councils, as well as state and regional councils.

For the new year, a goal has been set for a 6 percent increase in membership. The purpose underlying this goal is not simply to gain numbers for members' sake. In fact, from a strictly economic point of view, increased membership can mean trouble, especially in a period of increasing costs. Last year, for example, services to individual members cost \$1.13 more than the membership fee.

Membership growth is important for two professional reasons. A larger membership enhances the authority of the Association as it represents its members. Secondly, because membership implies a professional commitment to the goals of the Association, an increasing membership serves as a means of developing more leadership people in the field.

To meet the projected goal, special efforts will be made through the local, state, and regional councils. Recent experience suggests that state councils in the United States and regional councils in Canada are especially effective vehicles for recruiting additional members. The Organization and Membership Committee, chaired by Albert Kingston, is charged with major responsibility in regard to this goal. Jack Humphrey as Organization Chairman for the United States and his counterpart in Canada, Ethel King, will also bear key responsibility.

Responsibility for growth in membership on an international basis will rest with a newly formed International Affairs Committee chaired by Henry Bamman. Eve Mahmquist has developed a ten-point plan outlining IRA's role in raising reading standards around the world. To further support Council development, the Council Program Aids Committee, headed by Virginia Moore, has developed special program kits including printed material, recordings, 2 x 2 slides, reprints, and a bibliography.

The administration

Marked changes have been made in the central administration or Headquarters of IRA in recent years. Increase in membership has required a larger headquarters staff. In turn, a larger staff has made the procuring of special talent possible. With the same relative effort, i. e., the same percent of income being spent for administration as in the past, the Association

now has an assistant executive secretary, a business manager, an editor, and a computer programmer. Increase in size will cause other specialists to be added. Perhaps the next person will be a specialist in research.

This is well and good but one must admit that it is all quantitative. Is there a qualitative appraisal of Headquarters as well? Indeed, yes. Recently a CPA, who has had extensive experience with nonprofit organizations, and the president of a publishing company reviewed the statistical and financial records of the Association, including its projections for the future. They agreed that the Association has been well managed and has been served well by its Headquarters Staff. They did suggest—in fact, strongly recommended—that the Board develop a management policy statement to give direction to future decision making. The Association has reached the level of complexity where this direction is highly desirable. Developing such a statement has been given high priority for the coming year.

One cannot speak of Headquarters without mentioning the building program. This project has been moving on schedule with 1970 set as the target date to move into the new Headquarters building. This year is critical for the fund raising activities being directed by William Sheldon who has developed an extensive program of activities for individual members and the Association's councils.

Service

The Association makes its major contribution in the realm of service. Service is the prime reason for the Association's existence, and we must look to the range and quality of its services to judge its effectiveness. The Association's services center around information—gathering and at times generating and disseminating it. This handling of information in reading re-

sults in four major activities around which the activities of the Association center:

- Publications
- Conventions, Institutes, Conferences, Workshops (or whatever name might be given to the gathering of people to see, listen, and tell)
- Spokesman for the reading profession
- Information Center

Publications

Publications, which last year (1966-1967) accounted for approximately 40 percent of IRA's total budget (\$220,000), are the Association's major service activity. The magnitude of this effort is further enhanced when one recognizes that all manuscripts are provided by authors with no cost to IRA. This willingness to serve makes this high level of productivity possible.

At least thirty-five different items are scheduled to be published next year. The journals, commissioned volumes, Reading Aids, Perspectives, and Bibliographies are continuing series and, of course, make up the bulk of this number. However, new publication efforts are also scheduled for next year:

1. The ERIC/CRITER Monograph Series—four volumes—(first two: A. Sterl Artley and Ruth Straug) funded through the IRA Research Fund.
2. A series of monographs to interpret reading instruction. A USCIE/Indiana University Foundation Project provides the manuscripts for IRA.
3. *Convention Abstracts* for the Kansas City Convention. The annual convention has grown to a size which makes publishing proceedings too expensive. Joseph Nemeth will serve as editor of the abstracts volume.
4. Discussions are in process with

the Department of Audiovisual Instruction to commission a jointly-sponsored volume on multimedia and reading.

Conventions, institutes, workshops, seminars

The Second World Congress in Copenhagen and the 1969 Convention in Kansas City immediately come to mind. Dorothy Dietrich is planning the Saturday program and William Powell, the seminars for Kansas City. In addition, Alan Robinson working with Kenneth Goodman and the Committee on Psycholinguistics and Reading, has scheduled four regional seminars on linguistics and reading for next year in Chicago, New Orleans, Toronto, and Los Angeles.

A Perspectives Conference is scheduled at the ASCD meetings in Chicago in March 1969, sponsored by the Reading Development Committee, a joint committee of the American Book Council and IRA. The theme of the conference is "Developing Lifetime Readers."

Likewise, the Regional Planning Committee, chaired by Amelia Melnik, is charged with organizing regional conferences, seminars, or institutes on timely topics.

The Automation in Reading Committee is also planning a special pre-convention institute at Kansas City. The National Congress of Parents and Teachers has agreed to sponsor a perspectives conference at Kansas City concerned with parents and reading.

Various provisions of the Educational Professional Development Act are being explored for the possible development of special teacher institutes.

Spokesman for the reading profession

In its role as spokesman for the reading profession, IRA relates on several fronts with other professional organizations, with government and private agencies, with professionals in the

broad realm of educational endeavors, and with the public. IRA is already deeply involved in this area of service and plans to significantly increase its efforts to become a stronger force in influencing reading instruction. Much administrative and committee effort is scheduled into the following:

- As a member of the Consortium of Professional Organizations concerned with Teacher Education (MLA, AHA, AGA, NCTE, DAVI), IRA will continue to participate in projects concerned with upgrading the nation's teaching force. This participation may include special projects under EPDA.
- As a joint sponsor of ERIC/CRIER, the Association serves a leadership function in this highly significant activity. The ERIC/CRIER Advisory Committee is cosponsored by IRA. The Association's journals all provide regular feature columns to keep members informed of the Clearinghouse's activities.
- The Education Television Committee, Hazel Horn Carroll, Chairman, is charged with requesting space on one of COMSAT's educational channels for IRA programming and for requesting a grant from the Corporation of Public Broadcasters to support such programming.
- The Automation Committee, Duncan Hanson, Chairman; the Committee on the Evaluation of Instructional Materials, Robert Dykstra, Chairman; the Professional Standards and Ethics Committee, Richard Watson, Chairman; and the Committee to Prepare Guidelines for Reading Fa-

cilities, John Martin, Chairman, are all charged with developing standards and/or guidelines to provide direction for the profession.

- Several committees are charged with relating to other professional organizations to work toward common goals. The Library and Literacy Committee, Ruth Carlson, Chairman; to coordinate with NCTE and ALA. The Literacy Committee, Joseph Manganò, Chairman; to work with NCTE, NAPSIE, and ALA. Professional Standards and Ethics, Richard Watson, Chairman; to relate with ASCD and TEPS.

These samples provide an indication of the thrust for next year in IRA's role as spokesman. In addition, the Resolutions Committee, under Ralph Preston's leadership, is charged with searching out issues upon which the Association should take a stand.

Essential to next year or any year is planning. Nila Banton Smith will complete the report of the Long-Range Planning Committee. Dr. Smith's report will serve as a useful guideline for the Association's projections for future developments.

A committee serving as a "think-tank" met for an entire day in Boston to review current needs and developments of the profession and of the Association. An Advisory Committee, chaired by Ira Aaron, will make recommendations to the Executive Officers and the Board as an outcome of this meeting.

The Association will indeed be busily engaged this next year facing challenges and taking advantage of the opportunities provided.

The Tides of Time

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AT A DINNER given in honor of his birthday, Rudolph Bing, General Manager of the Metropolitan Opera, remarked, "I am obviously getting old, but you should know that old age has many advantages." After hesitating several seconds, he added, "but I just can't seem to think what they are."

I have tried to discover any advantage I have and two have come to mind: One, I have been an observer of the reading scene for a long time and, two, I am now at the age when one is said to be in his second childhood and I should be able to sense better than others children's joys and frustrations. Here, consequently, are a few opinions—driftwood from the Tides of Time which have been swept along and deposited in my mind.

The first is that the teaching of reading must be adjusted to the conditions of the times and it should, therefore, change with time. The critical conditions of life change radically during a lifetime. My elementary school days were spent in a three-story building that housed grades one to six in a small, isolated town in northwestern California. The school contained no library room nor classroom bookshelf. In the town were no automobiles, or library, or book stores, or newspaper or magazine stands, no movies, or street names, or letters. There was very little of anything anywhere for a youngster to read.

Education was then regarded as very serious business; the school had no place for such frivolous things as storybooks. I was well along in the second grade when, for the first time, a teacher halted work to read the class a story. We were as astonished as we were thrilled. We sensed that this was a violation of a fundamental rule

of the educational establishment of that day.

Even during the 1918-30 period when I was most active as an investigator of reading, the majority of American schools and communities were similar in many respects. For example, as Clifford Woody reported in 1921-22 (14) and as I found a few years later (7), the typical teacher of primary reading spent nearly half of her time drilling pupils on letters and phonics and related study of isolated words, much as she had done when I was in the primary grades.

In order to suggest the amount and kind of changes that have occurred in general, I will sketch briefly the history of beginning word study methods. The first method in the western world was an alphabet method, which introduced the letters before words. In his *Orbis Pictus* published in 1657 (5) the famous Bohemian educator and scholar Comenius described it as "that most troublesome torture of wits" which kept children employed "for some months, or even in some cases for a year or more." He recommended a "word recognition method" which has been advocated in a variety of new forms during the intervening 300 years. Even when supported by various procedures such as letter sounding, augmented alphabets, and phonic schemes, the letter-first or to use the popular current terms "code" or "alphabetic code" or "code emphasis" method, in the opinion of such critical observers as James McKeen Cattell, John Dewey, G. Stanley Hall, Edmund Huey, Grace Fernald, and others expressed before 1920, continued to perplex many children. Indeed, this opinion was shared by the authors of the first yearbooks of the National

Society for the Study of Education devoted exclusively to reading, the Twentieth published in 1921 (11) and the Twenty-fourth in 1925 (12). The yearbooks presented the views of the leading scholars of the day, Ernest Horn, William S. Gray, G. M. Whipple, G. A. Yoakam, Stuart Curtis, F. L. Thorndike, and others. The following is quoted from the summary of recommendations in the Twenty-fourth Yearbook:

Recommendation 2. No separate work in phonics should be done until the child has established the habit of thought getting, has a reasonable stock of sight words, and has begun to note freely gross similarities and differences in words.

This statement was the official launching of this still widely used method. Let us call it the Twenty-fourth Yearbook method.

Although I was not a member of either of these yearbook committees, I was asked to review the Twenty-fourth Yearbook at the annual presentation meeting. Being critical of delaying teaching the letters and all visual and auditory insights until *after* a batch of sight words had been introduced, my recommendation was that it would be better if they were introduced simultaneously and evolved together. Indeed, before I knew what was to appear in this yearbook, I and my assistants were already at work preparing two "programmed" outfits of experimental material, the description of one of which begins with the following:

"On every page . . . on which new words are first printed, the whole alphabet is [placed in a column] down the right side of the page, and each new word printed beside its initial letter. . . . This device helps the pupils to catch the significance of initial letters, to learn the alphabet in good form and for a genuine purpose, and frequently to observe together, similar word . . . parts" (13). Further experience was provided by asking each child to cut

out the introductory word cards and make up an alphabetized "word picture" dictionary as he went along. When I first published a basal reading series in 1930, I was forced to omit the first device but managed to keep the dictionary cards and a dummy dictionary. The extra material sold so poorly the publisher dropped it from the first revised edition.

The Twenty-fourth Yearbook committee's recommendation was widely adopted and perhaps rightly so in the light of conditions which prevailed in 1925. Most of the children entering school then knew no letters at all; fewer than one in ten knew as many as half of them. But today is another day. In a national survey just completed (1), Walter MacGinitie and I found in striking contrast that instead of one out of ten, nine out of ten of the beginners today already know some, many, or most of the letters in the test. Children examined near the end of kindergarten do almost as well. Such a difference means that the problem of teaching the alphabet or employing a "code" approach today is utterly different from the issue in 1925.

Today's youngsters have many other advantages over those of yesteryear. MacGinitie and I found that about 80 percent of both the kindergarten and first grade youngsters are already able to read a number of words; 40 percent of those entering the first grade recognized more than half of the words in the test. Note that if you teach letters and phonics to these youngsters the first day they enter first grade, you are not starting them with a code method; you are really introducing them exactly as the Twenty-fourth Yearbook recommended, namely, *after* they have learned to recognize a "stock of words."

Television has given today's children a story sense far in advance of the youngsters of yesteryear. In all these and other respects today's children are

way ahead of those of 1920. Indeed, data that MacGinitie and I have suggest a pattern of life in which children learn to read quite as they learn now to understand and use spoken language, merely by living a normally active, highly verbal life. That stage is close right now, and it could be reached more quickly and easily if we were to make a few obvious additions to television programs and ordinary everyday printed material that could be provided cheaply in any home or in the schools—which it seems likely will soon open their doors to all children of four, or possibly three.

The philosophy, the dispositions, the skills of today's typical teachers have also changed. Should a teacher of the 1920's visit our schools today, she might react in the manner suggested recently by a congressman, who said, "If Franklin D. Roosevelt were alive and observing the American scene today, he would turn in his grave."

To restate the first thesis: The values of most reading materials and methods depend more upon what children do at the time in school and out, upon attitudes and abilities they possess, and upon the skills and habits of their teacher than upon any inherent, absolute virtue of the material or method itself or on any basal psychological principle. Experimental results obtained before 1930 are often very different from those secured today, and practical recommendations made then were and should have been different. One should expect that most of them will not be valid now. Also, if one tries to reach conclusions about desirable practices today by summing up the results of studies done over a span of many years, one will merely get ambiguity. Any study done in the past is meaningless when taken out of context—that is, when interpreted without taking fully into account the vital characteristics of the time. "Sufficient unto

the day the [educational practices] thereof."

Rapid changes now under way

My second thesis is that such extraordinarily rapid changes are now under way in the many forces which affect the teaching of reading that *drastic* changes from the 1925 materials and methods—not merely minor modifications—are desirable at all levels. Children from ages two to four in the New York City area spend about forty-eight hours a week before their home tv sets and devote only gradually less time as they get older. Daily they face a world flooded with words—printed words in books, journals, ads, placards, billboards, and spoken words from live lips and loudspeakers. New teaching machines and incredible computers will soon be common commodities. There are marvelously promising new slow-motion picture and other machines and devices whose values for teaching reading are yet to be explored. The *major task* ahead is how to capitalize upon these mighty forces which already are having an almost incredible influence on the intelligence and verbal powers of youngsters. In all seriousness, something will have to be done to put a brake on this runaway child development. What are we coming to? I recently had a dream that made me shudder in dismay, but it may have been prophetic. I dreamed that I saw a child in a second-story apartment cleverly taunting another youngster on the street below. The latter, stung by the sharp comments, shouted; "You think you are mighty smart, don't you, but I bet you don't dare come down and fight." To which the first child replied, "I would be delighted to accommodate you, but how can I? I haven't learned to walk yet."

The need for good programing

My contemporaries and I are guilty of many failures of commission and

omission, one failure being to promote earlier and more effectively the possibilities of what is now called "Programming" with a capital P. The basic principles were described and illustrated in several areas by E. L. Thorndike early in this century. I was greatly attracted by their promise when I was a graduate student in experimental psychology. The fact is that the first two experimental outfits for teaching beginning children to read that my helpers and I prepared between 1924-27 were really programs of this sort. One of these contained about 1,200 8½ x 11 inch pages of teaching materials for use during the first year of work. Indeed the major hope of my early years was to introduce a program based fundamentally on outfits of this general type.

But alas, in the 1920-1930 decade when these materials were prepared and tried out experimentally, this approach was completely out of harmony with existing school practice and budgets and the new theories of progressive education then gaining acceptance. Out of it came in published form for general use only a new trifle called a "Preparatory Book" which, despite the hopes of author and publisher, never grew up to be more than a pathetic fragment of the program originally planned. When I realized near the time of completing the second revision that I could not get a really programed outfit published, I simply quit the enterprise.

The paramount importance of the teacher

The experiments with these programed materials conducted between 1925 and 1930 demonstrated to my satisfaction at least that while they would help the teacher enormously, they would not do it all. I found that the most detailed and extensive outfits I could prepare still failed to meet the needs of many youngsters and left

much to be desired for some of them. It became obvious that the most necessary and subtle individual pupil guidance could be provided only by a teacher—in fact for a few children only by a teacher who had developed a high level of professional insight. This is still my conviction. It has been demonstrated repeatedly that, for example, how well today's basal reader outfits work depends mainly upon how adequately the teacher supplies the detailed guidance and instruction that the materials do not provide. And there is an awful lot they do not include.

Meeting individual needs.

The test of time has shown that no method of teaching the important reading skills yet invented has been optimum for all children or even a majority of them. Materials and procedures best suited for some children in a typical class are often spectacularly bad for others in the same group. Despite these facts most basal reading programs are now as nearly alike as the manikins in Macy's store window.

Such materials as the basal readers should be replaced by materials so extended and diversified as really to meet the obvious need for fully individualized programing. Authors of basal readers and other materials should and would take the lead in making major improvements if publishers will give them the reins. The potentially powerful IRA should begin now to insist that teachers get all the printed matter that they need truly to tailor instruction to fit the individual. A typical class should have several, perhaps a half-dozen, really *different*, adequately programed outfits and a teacher who can use each of them with high sagacity and skill.

Need for better teacher training

My generation is guilty of doing less than was needed to provide for teachers of reading a degree of diagnostic

and technical excellence that has been possible. Even now only a few teachers receive a high degree of these insights and skills, and practically all come in graduate school. Undergraduate teacher training institutions do not provide it. In one of the last of my many private chats with the late William S. Gray, we agreed that no really comprehensive program of teaching reading can be sustained, much less improved, in the schools unless the teacher training institutions provide good practical, as well as theoretic training, to carry it on. We both admitted sadly that we hadn't done as much as we should to improve teacher training.

This neglect is no longer excusable. Every elementary teacher should now be equipped at least as well as the typical "reading specialist" by means of an internship-type training equivalent to a full academic year of work. If elementary teachers reach a fairly high level of the sophistication in reading now possible, all that they teach at the present time, and more, could be completed in four years, leaving later grades for much needed, highly specialized diagnostic analysis and advanced, completely individualized study based on well-programed materials and activities and expert teacher guidance. The latter work will require considerable information, skill, and technical aids not available at present but which soon should be.

Need for better research

During my lifetime, research related to teaching reading has been moving away from intricate laboratory, experimental, and analytical work of the kind initiated by Cattell, Thorndike, Judd, and others toward large-group studies. Modern computers and machine-scored tests have made this type of study increasingly quick, cheap, and impressive. One can arrange to have several classes taught with two or

more different methods, give a few tests before and after, turn on the computers, and without ever seeing one of his subjects at work come up with results of a big study. But what does one have really? A great deal of value for solving certain problems, to be sure, but very little for others.

At best these studies yield only very uncertain suggestions concerning the causal relationships which are so critical in teaching. Each reading program, for example, is a conglomeration (sometimes a mosaic, sometimes merely a mess) of a score or more of vital components whose specific contributions are not determined or controlled. If one studies what happens to different children in the same experimental classes, where two or more programs are being compared, one will see that these vital individual differences are swamped by the group results.

Scientists in medicine discovered this fact long ago. To be sure, statistics, such as data on smokers and nonsmokers, are gathered and publicized frequently; but the most important findings are made by thorough scientists in their laboratories working with extremely analytical methods and with rigorously observed precautions against being fooled by uncontrolled variables.

Hans Selye, who is probably the best informed living authority on the theory and practice of research in the medical field, has described a number of "traps" and "tricky dilemmas," for which the investigator must be ever on the lookout. He reports one which is essentially similar to familiar studies in the field of education: "Each of five groups of animals is treated in a different manner, but in only one . . . is there a striking change. . . . In this group, however, every animal shows the change and there can be no question about the statistical significance of the difference between this and all the

other groups. . . . The experimenter, therefore, is very likely to conclude . . . that the treatment was the cause of the change." And he will often be utterly wrong because "what you gave is not necessarily what acted." And Dr. Selye proceeds to give a half-dozen examples of the ways, some of them exceedingly intricate, in which other influences (or variables) did their tricky work. He adds, "Fallacies of this type are extremely common, and quite difficult to detect. . . . For the benefit of younger investigators, I should like to point out that despite my experience hardly a month goes by when I am not fooled by one of the camouflages of this vicious trap" (9). I suspect that they are more numerous and more subtly concealed in our field.

There is a tendency recently to minimize the importance of uncontrolled variables often on the assumption that they can be washed out by piling up more cases. If this observation is correct, one is moving in exactly the opposite direction from that followed by the scientific workers in medicine. One cannot make clothes wash out cleaner by throwing more dirty garments into the machine. My intent, however, is not to deplore the use of mass-statistical methods but merely to bewail the prevailing shortage of analytical and experimental studies. Statistics is a working tool that has been greatly improved during the last century. It is, however, no substitute for the more analytical, experimental, or clinical research. Such outstanding scientists as Darwin, Wundt, James, Freud, Piaget, and Skinner did not really use statistics at all.

Comments on two major recent studies

The two extraordinarily extensive studies recently reported, one in part by Guy Bond and Robert Dykstra (2) in part by Dykstra alone (6), a comparison of first grade programs is

based wholly on mass statistical data; and the other by Jeanne Chall (3), a survey of studies made since 1910, is based almost entirely on the same kind of data. These reports by our top scholars are admirable in general, and they contain many valuable suggestions for our future efforts.

They both offer suggestions for one type of practical step, however, which is based on very shaky evidence. Although Jeanne Chall quite justifiably states that none of the newly proposed extended alphabets, or linguistic or phonic systems, has proved to be superior to any other, she strangely suggests a panacea herself. She writes "School systems can improve reading standards by using one of the 'complete' code emphasis programs . . . or one of the separate phonics programs as a replacement for the word perception program in the conventional basal reader series" (4). While the particular procedure for using the code method which she recommends seems likely to be a very good one for many of today's children, such a widespread substitution of a code emphasis approach for other procedures is not justified, by either of these studies or by any other existing evidence.

I had just finished writing the preceding statements when I encountered the first of the final reports of the cooperative first grade studies. This one, supervised by Edward B. Fry (8) is based on the full three-year period. It shows no significant difference among the three programs and no support for Jeanne Chall's view that "the best beginning reading results are achieved by using a 'code emphasis' (i.e., linguistic, or phonics) approach." The Fry study shows that a group of New Jersey teachers got quite as good results with a widely used basal system as with any of the new code emphasis approaches they tried. This finding alone should make one hesitate before changing whatever

method these basal books contain to a code procedure. This conclusion is not to say that it is desirable to confine any basal system to one and only one approach.

The reports of other studies will appear later, and I expect their outcomes will differ. Indeed anyone who appraises the results which are to come or who repeats Jeanne Chall's review of the studies done in the past is in for a merry game of hide-and-seek as the alleged advantage of the code approach, like a mischievous child, appears and disappears from study to study, indeed from time to time in some instances in the course of the same study, as in the case of Fry's report. Such differences are likely to occur when the role of certain influences is not known. For example, recall that MacGinitie and I found that at least three quarters of representative American children have already learned to read a few or many words before they entered the first grade. No matter how they are taught from that time on, the investigator doesn't know how they learned the words in the first place, whether by "look and say," or visual analysis, or by letters and sounds, and, if so, whether the letters and/or sounds were introduced before, after, or simultaneously with whole words. It is impossible to draw conclusions about such introductory methods from such a confused mass of data.

All of these studies together demonstrate that it is time to ask the proponent of any system or procedure of widespread change to determine first, and not last or never as has been and still often seems to be the custom, for what particular type or types of children and what type of teacher, if any, his scheme works best. The fact that none of the programs now under review is demonstrably best for all children in all situations should not blind to the possibility, however, that

each of the methods, old as well as new, *may be* superior for some children and for certain teachers.

These two studies make a number of valuable contributions. One is a demonstration of the emptiness of the extravagant claims made for several methods recently introduced. I do not want to imply that the failure of any of the new word-study schemes to show a discernible advantage over other methods, new or old, means that search for a better procedure is futile. On the contrary, there are numerous possibilities as yet untried, indeed undiscovered, as well as others—such as, materials and methods of the type that Donald Durrell is working on now—which may prove to be truly superior for many children. Jeanne Chall's suggestion that letters and phonics be introduced early, for a short time and in minimum quantity, may work very well with many of today's children. The general plan of introducing letter sounds and phonic study early in the beginning stage and for a short time only could be adopted when begun simultaneously with whole words. As Ruth Strang suggests briefly in the March issue of *The Reading Teacher*, (10), the Twenty-fourth Yearbook plan, the words first plan, has distinctive merits, some of which may show themselves only by influencing the learner's attitude toward reading in general.

We must rid ourselves of the idea that what is better on the average is superior for all. If you ask today for whom any one of these methods is best, the only valid answer is "it all depends." It is as simple—it is as tough—as that.

The need for materials for teachers to try

No amount of general research will tell *you* for sure which method is best for *you* to use. Each teacher must try out different approaches with her vari-

ous pupils until she discovers the best fit for each type of pupil in her group. Further debate about what single method should be adopted by all is futile in my opinion. The only sensible procedure is to provide several sets of materials, programed and adaptable in the modern sense, for each teacher to use experimentally. Failure to provide such a choice is one of the weaknesses of today's typical basal reader programs.

Similar packets of programed materials should be prepared for all the major reading abilities at every grade level. An assembly line scheme would permit the teacher to select the ingredients of the reading program for her pupils as she assembles her lunch from the cafeteria line. She could then choose a well-balanced diet suited to individual tastes with a minimum risk of indigestion for either teacher or pupil. Thus, instead of changing all the basal programs tomorrow, and again a decade later if conditions change as they surely will, let us keep an assortment of programs to enable each teacher to determine by trial which ones serve her purposes best. Any new one that shows merit should be made available for trial whenever it appears in good working order. A teacher who is already getting very good results should not be advised to be content with it for she is likely to be the one to profit the most from a superior procedure should one come along. If all teachers would adopt an alert, experimental attitude, it would provide a most vital basis of progress in teaching. Members of IRA are persons who possess this drive.

A service for IRA to render

Someone may say, "We can't afford all these materials." If teacher's time and pupil's efficiency and joy in learning to read are of high value, the costs will be less, not more. Even if we dis-

regard these considerations, we can afford the costs. This country is the wealthiest in the world with taxes among the lowest. The Gross National Product is now 850 billion per year and growing. A few billions necessary to improve the national level of verbal competence—something that will contribute to making this the most productive of all the professions—can be afforded. We must insist on this now. The potentially powerful IRA should take the lead, as the American Medical Association (to cite only one example) has done so successfully. Association members must become far more venturesome, not merely in family sessions or meetings, but in the public domain. Members must become more demanding, at least for the materials and facilities needed to teach reading better.

I am really aflame with envy of IRA's youth and opportunities. It seems clear to me that a new day is dawning. Greet the new day with confidence and ride high on the Tides of Time.

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Bridges to Understanding

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THOUGH MAN HIMSELF invented reading, he has failed over many centuries either to explain it satisfactorily or to develop a suitable procedure for the learner. We cannot afford to be happier to win debates on what we think we know about reading than we are to learn more than we have ever before conceived about it.

To consider this field, we must first understand ourselves. We view the phenomenon of reading from individual perspectives. Each perspective has some validity but, as yet, not complete validity. We analyze logically. The elements we have so far managed to discover, we isolate into separate bits for children to learn in sequence.

We harbor the misconception that one bit must precede another. This is the case because, after our initial discoveries, we let logic obscure the nature of language and learning and rule our decisions.

One spring day I heard a noise that seemed like the ruffled snoring of a horse. What a horse was doing in my garden I couldn't imagine. Then I remembered that I had scattered seed on the patio and that twenty quail had been feeding there. Evidently something had frightened them. What I heard was the rush of their wings

as they all took off to safe perches. I enjoyed concluding that twenty quail equal one horse power.

On another occasion I watched an ancient cat of generous, ponderous proportions walking slowly down the hill. I wondered what the quail would do and expected to hear another whir of wings. But those quail flew a short distance behind the cat, formed a ragged half-circle, and escorted him off the hill. I concluded from this that twenty quail are greater than one ancient cat.

As a human being, man has a most marvelous ability to develop concepts and to classify knowledge. But he is not sufficiently aware of the fact that when one classifies or identifies, he focuses so intently on the category or the object, that he loses sight of important relationships.

It is of no great consequence that I should have discovered that horses and quail have something in common or that fright in the presence of the predator should be reversed when the cat is old and the quail are many. Yet the principle that air in motion sets up vibrations and the adage that in unity there is strength are observations of considerable consequence.

My learning about horses, quail, and

cats, as separate entities, had blinded me to fundamental relationships, just as concentration on word recognition, comprehension, and speed as separate entities to be cultivated separately, blinds me to the interrelationships among them, which should also be cultivated.

I sense in our thinking about the reading process and the teaching of reading a failure to appreciate the nature of the phenomenon with which we deal. I sense it when we teach consonants first and vowels second, or vice versa. I sense it when we measure language and omit every fifth word in a passage to see what happens to comprehension. I sense it when we leap from the teaching of words to the expectation that children who know the words will be able to answer our comprehension questions. I sense it when we have children practice at great length what they do not yet understand.

Neither the process nor the teaching can possibly be simple. Language is not yard goods nor is it a matter of mixing all the dry ingredients first.

In this paper I hope to foster three ideas: that the reading act is a matter of the interaction of concepts, cognitive patterns, and linguistic patterns; that logical analysis suggests the presence of seven or more distinct operations, some of which we are neglecting to teach; that the behavior within any one of the seven operations, as well as among these operations, is a matter of relativity or environment.

Relativity in reading

Lee Deighton beautifully illustrated the principle of relativity in concepts two years ago at the Association's annual convention, taking the words of a phrase, one at a time, and showing how the conception of the meaning of the word has to be held in abeyance as succeeding ideas unfold.

The word *little* opens possibilities of

littleness in relation to all sizes of things. The addition of *white* limits *little* to the relative size of something which could be white. The whiteness itself depends upon the surface that reflects it. The further addition of the word *house* makes a larger littleness than the addition of *mouse* would, while one still wonders whether the whiteness is of painted wood, stucco, brick, or stone.

Deighton noted that while the eyes plod along from left to right, physically able to grasp little more than a word at a time except for peripheral vision, the nerve impulses are cleaning house at 200 miles an hour, breezing through cobwebs and neglected corners of the cerebral mansion, brushing off old concepts, calling up related materials, and rubbing each new bit of information against all that has gone before, making alterations as necessary. The sorcerer's apprentice was a slouch in comparison.

Take an entire sentence now to experience some of the dimensions of this principle of relativity: the first word is *t-h-e*. How does one know how to pronounce the *t-h*? One knows it only if he has heard the word before, for *t-h* has two possible pronunciations in that position. How does one know how to pronounce the *e*? One knows it only after he has determined the initial sound in the following word or has mentally formed the sound of the second word as a whole.

The second word is *b-e-a-r*, so *t-h-e* is "thuh." If one were a child who spoke a dialect of English or a foreign language devoid of *t-h-e*'s, one could hope that his teacher would give ear and speech training with many sentences containing "thee's" and "thuh's" before one was expected to read them.

As an English speaker, one expects *t-h-e* to be followed sooner or later by a noun: "the somethingorother," or by an adjective and then a noun, and so

on with the possibilities. With the next word, *b-e-a-r*, one can anticipate its role as he tries to decode its printed symbol.

The *e-a* may yield "beer" or "bear." The *r* that follows the *e-a* creates new possibilities, such as "bur" and "bar." Happily, in some dialects, "bar" is just right. But admittedly one would be much better off if he could have sighted the bear before he had to sound it out. One's brain is going to have to consider the possibilities and narrow down the candidates as the sentence proceeds.

The bear instead of *A bear* suggests a particular bear. But *The bear* can also be the beginning of a generalization, such as *The bear is a mammal*. Another matter of relativity is the meaning of *bear*: a shaggy mammal? a constellation? a dealer in stocks? a portable punch press? or figuratively, a cross person? Think how often one dismisses word-meaning with a synonym.

The next word could be *rug* or *claws* or *skin*, with *bēar* in the adjective position. But the next word is *d-i-d*. The closed syllable ending in *d* gives *i* what some people call a short sound and others call an unglided sound, both of which terms are a comfort to specialists and a confusion to the young. The arrival of a verb form, *did*, confirms the fact that *bear* is a noun. It also diminishes the probability that the sentence is a statement of principle or general truth, for principles and generalizations are often in the present tense, while *did* suggests a completed act.

The next word is *n-o-t*. Again one has a closed syllable, this time with a cooperative *t*. "Did not what?" the reader asks. If the sentence ends here, the reader must think back to preceding sentences to find what the bear did not do.

The next word is *l-o-o-k*, with two choices for the sound of the vowels.

The spoken language is the deciding factor. Since *look* follows *did*, *did* is an auxiliary verb. Since the bear did not look, the bear is probably alive, though inattentive. Therefore, it is probably not a portable punch press.

The following word is *l-i-k-e*. *Like* has two good reasons for being pronounced as it is. The silent *e* rule helps the reader if he knows it. Or, if the word is in the sight vocabulary already, there is no problem. If the child has observed that *-ck* is used when the vowel is short and that *k* follows alone when the vowel is long, he has an additional support for his choice of pronunciation.

The verb phrase does not end in *look*; it ends with *like*. The meaning of *look like* is *resemble*. So the bear isn't looking at anything. Maybe it isn't even alive. Back comes the portable punch press, just like a presidential candidate.

Now the reader thinks the sentence must go on to tell what the bear does not resemble. The next word, *t-h-e*, heralds a coming noun, *t-o-y*. So *t-h-e* is "thuh" unless the author is going to say *THE toy of all possible toys*. *Toy*, a delightfully dependable word, may even rhyme with the reader himself: *boy*.

Now *bear* is associated with *toy*. Since the stock market is not child's play, the stock market bear drops out of the running. Since one could have a toy portable punch press, the press stays in there punching. A live mammal or someone who is cross could still be the subject also.

The sentence could well end there, but it doesn't. The next word, *t-h-a-t*, contains the same problem of choice between voiced and unvoiced *th*. The reader must again depend upon what he has heard before. *That* is a referent word meaning *toy* again and predicting the unfolding of a clause with the toy idea in it.

The bear did not look like the toy

that what? The next word is *i-t*, happily again a closed syllable. Coming immediately after *that* without an intervening verb, *it* declares itself to be the subject of the clause. Word order tells the reader the function of *it*. A Japanese reader as yet unaccustomed to English order and mindful of his own subject-object-verb order would miss this signal.

It raises the question of identity. *It* cannot be *toy*, for *toy* is already represented by *that*. *Bear* is the only noun to which *it* could refer. Bears are masculine or feminine, but sometimes a speaker settles for *it*. Perhaps one has a live bear or perhaps a portable punch press. A cross person is a rather doubtful associate with a *toy*.

The last word, *w-a-s*, is a maverick with a special sound for the *a* and a *z* sound for the *s*. *Was* is consistent with the tense of *did*. *It* was a *toy* at about the same time that the *bear* did not look like one. Essentially we have three equations: *It* == *bear*; *that* == *toy*; *bear* == *toy*.

The bear was a *toy*. It was not alive. It could have been a teddybear or a portable punch press. It was a particular bear, not just a general bear. Only previous sentences, later sentences, pictures, or physical settings could tell one which kind of bear it was.

The sentence is really composed of two sentences:

The bear was a toy.

It did not look like one.

(or: It looked real.)

The first sentence labels the bear and classifies it as a *toy*. The second sentence comments on its appearance.

What is the main idea of those two sentences? The subjects of both are *bear* (*bear* and *it*). The objects of both are the *toy* (*toy* and *one*). The first verb expresses past existence and the second, past appearance:

The toy bear looked real.

Why didn't the clumsy author say this in the first place?

It must amaze the reader as it amazes me that all of these undercurrents, the relativity of sound and letter and word and order and structure and function and concept, are involved in the decision-making that produces comprehension.

Elements of the reading act

At present it appears that the reading act requires several interrelated and interacting ingredients which, to function well and to be understood properly, should not be taught in complete isolation. To list them in an order does not imply a sequence in which they should be taught. It implies only that the writing of English is a word at a time.

1. *Word Form*. The reader must be able to decode the symbols, by sight methods or sound methods or by contextual clues, to arrive at the English sound patterns.

2. *Sentence Order and Structure*. The reader must observe the role that the word plays in the order and structure of the sentence.

3. *Word Meaning*. The reader must determine the meaning a given word should have, given its form, its role in the sentence, and the suggestions of its meaning from the larger environment: that is, previous sentences, physical setting, etc.

4. *Sentence Meaning*. The reader must arrive at the meaning of the sentence in view of the sound, order, function, and meaning, of its parts and of the suggestions from the larger environment.

5. *Sentence Function*. The reader must determine the kind of idea the sentence offers and its role in the pattern of thoughts around it.

6. *Evaluation and Interpretation*. The reader must measure the author's style and views, against his own experience, filtering them through his cog-

nitive and affective sieve. Interpretation includes the intonation which the reader's understanding of the author's intention invokes. The reader must interpret beyond what the author has said, applying his own thought processes to the ideas, both as he meets them and after he has finished reading.

7. *Use.* The reader must use the ideas he gains and the ideas he generates from the reading. Some of these uses occur to him as he reads or even motivate him to read in the first place. Some of them appear later in dreams and old memories.

I have used the example of one sentence. Yet sentence-to-sentence relationships, paragraph-to-paragraph relationships, and chapter-to-chapter relationships are obviously aspects of the relativity principle. In present practice we confine our study too much to single words or single sentences, as though they were islands.

Concepts and cognition

To understand the material an author writes and to understand ourselves as we read, we must try to determine the way in which the English speaker views the world. All his life he has received sensory impressions of objects and living organisms in patterns of events and situations. He has developed thought and feeling reactions to these, so that his reception and memory are not photographic, accurate impressions, but rather enlargements, diminutions, and distortions. Recall may produce anger, joy, and so forth.

With regard to these impressions, the English receiver observes certain kinds of relationships: the parts of wholes, the cause of an effect, the order of ideas or events, the likeness or difference, the equality of one idea with another, and the subordination of one idea to another. His reception can be faulty; and the relationships he thinks he observes, invalid; but this

perception is what he is capable of doing and this is what he does.

The English speaker's concepts, expressed in his language and complete with observed relationships, then become the grist for his mill. He creates certain products: theories, laws and principles, generalizations, summaries, definitions, classifications, and procedures. In support of these products he gives examples or elaborates or applies.

In employing these ideas, relationships, and products, he may use divergent thinking, convergent thinking, inductive reasoning, deductive reasoning. His purpose may be evaluation, exposition, or persuasion.

But here is the punch line: *The order in which the author arranges his thoughts is highly individual.* To follow an author, the reader has to be ready for anything. Expectant, yes; but ready for individuality.

Furthermore, *the author will not always signal his intention.* He may not say, "First . . . next . . . finally. . . ." He may not say, "On the contrary" or, "In a nutshell." The reader is Theseus trying to find his way through the labyrinth, with only a string of words to guide him. And if he treats the ideas as a mere string of words, he is a lost soul.

The author who does not give extra signals to his intentions forces the reader to detect relationships among ideas and to determine the destination of the author from the given. He needs all of his storage of concepts, of ways in which ideas and attitudes can be expressed in "book English," of possible relationships among ideas, and of the kinds of language usually associated with a kind of idea. He must know that an idea is a creature not only of its expression but of its environment.

At any educational level, when one builds concepts in the English vocabulary, one should keep in mind the

many dimensions of meaning and meaning-relationship that create a concept. One can consider the cognitive relationships and products that have been mentioned. In addition, one can explore behaviors, qualities, and uses. The qualities of an object, in themselves, comprise a huge category: number, amount, texture, flavor, moisture, solidity, size, shape, color, sweetness, acidity, odor, sound. One does not have to confine his discussions, as often done now, to the language-oriented relationships: that is, synonyms, antonyms, homonyms, heteronyms, derivations, and derivatives.

Language and reading

What of language and reading? If one could imagine an author with an identical twin who had had identical experiences—and psychologists assure us that this is impossible—one could suppose that the author's language and the author's concepts would be perfectly understood by his twin. But in a school in San Francisco, one doesn't ordinarily find a classroom full of an author's identical twins.

The author is older. He grew up in the country. He has lost some of his regionalisms. No matter how carefully one selects the reading material, short of the children's own expression and dialect, the author is going to be more or less out of this world.

The schools must act early in the child's life, early enough so that the child doesn't find himself inferior to others in his class who are learning to read—inferior because he isn't used to the concepts and vocabulary of "book English," the sounds of "book English," the order of "book English," the structures of "book English," the relationships of ideas in "book English," and the various literary forms.

What one needs from linguists more than "rats that have sat on mats," although even those have a certain limited utility, is a chart of the sounds in

English words which cause difficulty to children whose language or whose dialect does not contain them all or does not have them in the same positions. Needed, as well, is a chart of the sentence structures to be taught to children of varied backgrounds. If a teacher could look at such a chart and see that final consonants and final consonant clusters are problems for Japanese and Chinese speakers, as well as for some of her Negro dialect speakers, she could teach children in a group instead of on three separate occasions. Chinese speakers as well as some Negro dialect speakers omit the verb "to be" (*Joe good for Joe is good*) and have some common problems with tense. To a sentence like *Joe likes peanuts*, Japanese and Hindi speakers bring a mind-set of *Joe peanuts likes*. The busy teacher needs in one place a presentation of linguistic information which shows the common needs of the mixtures she finds in her classes. Meanwhile, of course, she can listen and invent speech games and learning sequences.

The work of Labov, Bailey, Stewart, Shuy, and others has revealed the appalling handicap under which a Negro dialect speaker may struggle in learning to read "book English." Many of the signals to tense and number are lost in the omission of word endings. Standard English speakers have enough homonyms to worry about as it is, but the terminal fading practiced in some Negro dialects creates many more homonyms. Without the final consonant sounds, *bear*, *bed*, *bet*, *beg*, and *bell* sound alike. The unexpected difference in their spelling on the printed page is enough to discourage anyone.

The learning of standard English sounds and sentences is not an imposition of the language of the majority upon minorities, but a way of seeing that children who have to read "book English" in order to get an education

and to have lifelong access to the great English libraries of this world have the language equipment to meet that challenge.

New bridges to understanding

If we are going to develop readers with appreciation for the versatility of the language and with readiness for shift and change when the author springs his surprises, we are going to have to change the ways we think about reading and about the teaching of reading. One of the great changes must be in rigidity about what constitutes reading and what constitutes language arts. The great dichotomy must have its times together.

Having children think of many ways to say the same thing is not an unrelated oral activity but a preparation for the versatility of authors. Having children listen to one sentence and write or say what the next sentence might be is not just oral and written English but a study of reasonable sequences to expect in reading.

The study of sentence order and sentence function belongs in the reading lesson when comprehension problems occur. Breaking sentences into several short sentences or building short sentences into one condensed statement has relevance to comprehension, whatever the new terminology may be.

In teaching the comprehension of paragraphs or longer passages, we need to prepare children for the many occasions on which the author depends upon such structures, as parallelism, or upon the concepts with which he is dealing to show change of topic. You do not have to be told the author is changing the subject if you notice that a scattering of words like *coat-dressed-trousers* is followed by *horse-whinny-stall*. Then, again, there are occasions on which the author does not change the subject but does introduce another aspect of it. Enumerative material which allots different numbers of

sentences to different points without telling the reader a new point is being made makes special demands on the ability to trace likeness of ideas. What used to seem to be a psychologist's game of playing with word associations is something of great value in the detection of continuity in thought.

The reverse side of the coin is the C. C. Fries contribution of sensible-sounding nonsensical sentences, like *The oogley iggle angled eggley in the ugle*. Here the reader is at the mercy of sentence order, variant endings, and words like *in* and *the* to suggest the relationships though not the identity of the nonsense words.

A teacher in one of my classes presented the case of a high school girl of good intelligence who could read orally with good phrasing and accuracy and could answer fact questions but, regardless of the simplicity of the material given her to read either orally or silently, could not answer questions requiring more than a parrot response. By coincidence on the same night another teacher presented her procedure in using boxed reading material with passages to read, questions to answer, answer keys to consult, and records to keep. She explained that if a child made a mistake, she had him cross out his answer and copy the one the answer key had given. At the bottom of his answer sheet, under a heading asking him to tell what he would do next time to improve, this teacher's pupils wrote, "I shall try harder," and "I shall be neater." She was vastly pleased, and I chose to delay my attack on her self-concept.

When can more time be given to instruction in the subskills of comprehension? Only when teachers know what to do. At the present time there is little other than trial-and-error that helps the reader bridge the gap between the limited introduction of new words and the end questions. When a child misses the answer to a compre-

hension question, we need to analyze what the question really demands of him. In one of the New Stanford Reading Tests there is a passage whose whole meaning hinges on the word *literacy*. A reader who associates literacy with garbage collection might seem doomed to failure. But a reader who recognizes certain interrelationships in the passage may answer all the questions correctly without being sure of the concept.

Here are a few of many questions worth considering with children:

Does *however* always mean a change of direction in thought?

How do structure words like *by* and *on* get their meanings?

Does *but* sometimes mean *and*? When?

How can you tell whether *since* means *after* or *because*?

How can you tell whether *you* is singular or plural?

In how many ways does the author indicate number? tense? different time relationships? position? direction? manner? sequence? stress? juncture?

How can you detect the author's attitude (such as use of superlatives, use of connotative words)?

How can you tell when one group of words is complete and another is begun?

How do you know which of several meanings of a word to use in a sentence? What proves the unsuitability of one?

How can you tell when the author is continuing a thought? starting a new thought?

How do you detect differences in levels of thought or kinds of thought? (*A bear ate the meat* versus *A bear eats meat*.)

How do you distinguish a principle from an illustration? a principle from the reason given for the suitability of the illustration to the principle?

How do you distinguish fact from opinion?

How can you detect double meanings? (*If you model yourself after idols, you may soon find yourself unemployed.*)

Children should have experiences in listening for the effect of the addition of modifiers upon the meanings of basic sentences and in listening to the effect on total meaning when a word is changed or a sentence added. They also need to learn to untangle the author's use of reverse order (*small men physically versus physically small men*). Children's ability to generate one condensed sentence from two or more given sentences can lead to the expression of a main idea. Learning how to express a generalization from such a summation is another important skill.

To pursue the dynamics of reading a bit further, take this sentence:

Bugs never left Joe.

Is Joe a person in need of Lifebuoy? Is he a lower animal? Is *bugs* used figuratively to mean troubles in general?

Then comes the next sentence:

His faithful dog followed him everywhere.

Now it is possible that the dog's name is *Bugs*, or it could be the dog's population.

"Good old Bugs," said Joe.

The capital *B* in this context acts upon the meaning like *DDT*.

Notice that in the first sentence, *Bugs never left Joe*, one of the reader's troubles is that the verb, *left*, does not reveal whether *Bugs* is singular or plural.

Take two other sentences:

Bill went down to the station early to meet the train Joe had taken. He was so eager to see him.

The question is: Who is *he* and who is *him*? Authors find it easy to keep the object of their main focus in the subject position: *Bill went. . . He was.* It is therefore quite possible that *Bill*

is the subject of the second sentence, in spite of the proximity of *Joe*.

What clue in the first sentence suggests *eagerness*? It is the word *early* and the knowledge that Bill might have gone late if he hadn't cared much. The cause is eagerness; the effect, early arrival. It is partly the cause-effect consciousness on the part of the reader that helps him determine the identity of *he*.

Notice that a sequence is garbled and must be untangled in the reader's mind. Possibly first of all, Joe took the train. Bill was eager perhaps all the time, but at least second. The third thing that happened, Bill's going to the station, is the first we are told.

Station and *train* are concepts which must be known as related entities, related to each other and to human beings.

Notice particularly that linguistic knowledge, awareness of cognitive relationships, and generalizations about human behavior, all contribute to the reader's understanding.

I have analyzed separately and logically, but in the reading act it is the interrelationship of many factors that counts. Even context clues to meanings of strange words, which twenty-five years ago I thought to be linguistic or cognitive or experiential, are probably a mixture of language, thought, and experience. The sounds and stress the reader assigns to a symbol may change as he progresses through a sentence; the meanings of words, phrases, clauses, sentences, and larger units of composition may change many times. The reader travels through a maze of possibilities. *He must learn to make use of his pieces of equipment almost as though they were one, and it is this skill which we have not cultivated.*

Everything in life and language, which is a product of life, is relative.

It is for this reason that I cannot agree with those who would start with any one part of the reading act and call it a good beginning. The treasures of this house cannot be unlocked with a key for one tumbler. History will keep raising doubts about our procedures until our practices become suitable to the phenomenon with which we deal.

Researchers, producers of material, and teachers at every level of instruction must work to understand it. The material for its exploration is on every page of the natural language. Match this knowledge with the art and science of maintaining in children a zest for discovery and a pride in becoming. Then you have the magic formula.

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Children and Poetry

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I WISH FOR THE MOMENT I were a Joan Baez or Judy Collins. If so, I would have my guitar to play for you and invite you to sing some of the old folk songs children love. When we were all swinging with the melody and familiar with the stanza pattern, I'd suggest you add more stanzas as we go along, thus making this ancient oral-language literature more and more your own.

This is the sort of thing we have been doing with elementary school children through the workshop in poetry for children at Lehigh University. Folk songs have been one of the most successful means of bringing children and poetry together.

One of the most popular songs is that old timer which begins "Little bird, little bird, fly through my window." Each stanza is just like the last except for the introduction and some new word or phrase to replace "little bird"—robin, bluebird, woodpecker, and so on. The swinging rhythm and simple lines seem to invite even the least articulate five-year-old to chime in. Caught up by the charm of the melody, children add stanza after stanza until the known supply of birds vanishes and singers begin to draw in their own candidates—Mother Goose, Batman, and even Santa Claus. Sixth graders find such a list equally contagious and may sing out an invitation to Tarzan or even King Kong to "fly through my window and eat molasses candy."

"Bought Me a Cat" is another popular folk song with various children singing the *mew-mew* of the cat, the *baa-baa* of the sheep and so on, until the list of animals sounds like the roster of Noah's Ark. With this start on folk songs, one fifth grade introduced

its own variations on "She'll Be Comin' Round the Mountain." Instead of the lady "riding six white horses" as of yore, the fifth-grade heroine was celebrated in lines that went something like this:

She'll be riding in a chariot when she comes! Giddiup!

She'll be wearing a red bikini when she comes! Oo-la-la!

Then,

She'll be wearing a mini-skirt when she comes! Wow-Wow!

Finally, (in slow tempo)

She'll be riding in a hearse when she goes! Boo-hoo!

These old songs and the modern improvisations on the old tunes seem to loosen up even the most indifferent youngsters and bring them into the group enterprise. Even kindergarten children from foreign-language families find themselves joining in as they have not done before.

In many groups, the old stanzas and new variants have been hectographed by demand of children who read eagerly and critically what they have been singing so vigorously.

With this kind of introduction, poetry is at once associated with pleasure in the minds of children. It is something they *do* because they like it and because everybody is doing it with real satisfaction.

I use the word "do" and "doing" as quotes from the children who invariably speak of "doing a folk song" or "doing some new verses" or even "Can we do poetry today?" At first, it bothered me to have the word "do" associated with poetry. But I soon realized that this grew from their feeling of participation. They were responding to the rhythm with every muscle—singing or chanting, sometimes clap-

ping or beating out the rhythm with improvised instruments, occasionally skipping and swinging to the music. The ideas became their ideas, particularly as they added their own variations on the old rhythmic patterns.

What is poetry?

I suppose no definition of poetry would satisfy everyone. And certainly no poem appeals to all of us.

But at least two elements can be accepted by all of us, I believe, as prerequisites for a poem. These are *rhythm* and *words*.

How well the rhythm of a poem sings out to you will depend on your ability to hear the poet's melody and make it your own. If a poem is read haltingly or in a deadly singsong, it has as little melody as a Chopin prelude clattering from the faltering fingers of an untrained and unfeeling pianist.

The reader of a poem must hear the melody which the poet records in words alone. He must be a musical participant, sharing the poet's rhythm.

In much the same way, the reader must become a thinking participant as he reads the words of the poet. What does this poem mean to him? It may mean one thing to you and something quite different to me, depending, in part, on what each of us brings to the poem. There is no one to say you are right and I am wrong. In fact, this seeming paradox points to one distinguishing feature of poetry: It hints, suggests, implies, and leaves a mystery for the reader to ponder over. Carl Sandburg, in his wonderful "Short Talk on Poetry," quotes an Irish philosopher as saying, "What can be explained is not poetry" (1).

"The poems that are obvious," says Nakazawa, "are like the puzzles that are already solved. They deny us the joy of seeking and creating" (2).

If a person is to read and love poetry, he must be ready, then, to seek and create. He must be a partner of

the poet, bringing his ideas, his imagination, to the solution of the poet's puzzle.

To develop this kind of participation, we have encouraged children to record some of their own observations, first, in the factual manner of an observer and then in the imaginative language of a poet. To the observer, fog is a cloud resting close to the ground. The scientist might say fog is a layer of minute globules of water in air near the earth's surface. This statement is a puzzle already solved. Everything has been explained.

But what does that same fog suggest to an imaginative person? What is it like? How does it make him feel?

Carl Sandburg (3) gives us hints when he says

*The fog comes
on little cat feet.
It sits looking
over harbor and city
on silent haunches
and then moves on.**

After coming to school one morning through dense fog, a seven-year-old (4) put it this way:

*. . . fog is a monster
eating up buildings and houses
and cars and trees and roads.*

A fifth-grader said, "Fog is an angry spirit that kidnaps people with his great cape."

And from a third grader: "Fog is walking nowhere without a sidewalk."

Having created some poetic images of their own, these children were doubly appreciative of the imagery in Sandburg's tiny poem.

We have encouraged children to go outside and look at the clouds, to walk in the rain and snow, to handle rocks and seashells and seedpods, and then record their poetic images. The re-

* From *Chicago Poems* by Carl Sandburg. Copyright 1916 by Holt, Rinehart and Winston, Inc. Copyright 1944 by Carl Sandburg. Reprinted by permission of Holt, Rinehart and Winston, Inc.

sults have been exciting beyond all expectations.

An eight-year-old (5) in a very deprived area said,

*The rain falls like pussywillows.
They fall dancing.*

A first grader (6) said,

*When rain drops on flowers
It makes a little noise*

Like a ladybug walking on grass.

Another (7) said,

*Thunder is like giants bowling
When it lightens*

A giant gets a strike.

Often children have been launched on a creative spree after reading or hearing a book of published poems such as *Hailstones and Halibut Bones* by Mary O'Neill (8). Each poem in this book is about one color—"What Is Gold?" "What Is Purple?" and so on. Then the children have considered what various colors suggest to them and have come up with such poetic images as this (9) from a seven-year-old:

I like brown

*because paper bags
are brown*

*And Negroes
are brown*

sitting in the sun.

I like brown

because roots are brown.

A sixth grader (10) wrote,

Purple is bravery

And mountains far away

Ripe grapes and

Flowers blooming

A day when all goes wrong.

To one third grader (11)

Green is like a meadow of grass

Banana peels that are not ripe

And broccoli.

Teachers in the workshop, who have tried to record their own poetic ideas, gain new respect for children when they read what children write and new appreciation for the extraordinary sensitivity of children. Often children see more than adults and when they write

about what they have seen, their poetic imagery is more tinged with emotion.

For example, in Bethlehem, Pennsylvania, where Bethlehem Steel dominates the scene, a five-year-old said:

When I see the steel mill

I feel strong

Like a working truck.

In Bangor, Pennsylvania, fourth graders look out their classroom windows to a series of abandoned slate quarries which they seemed to take for granted. After several weeks of poetry, they suddenly seemed to see the desolation spread before them. One wrote, "The quarry is like another planet where everything is dark and dead."

One day the same group began to talk about their "feelings," as they put it. To the teacher's surprise, the children listed chiefly such feelings as misery, disgust, rejection, confusion, boredom, loneliness, and sadness. When the children wrote about these feelings, they came up with such comments as these:

"Loneliness is having your teacher send you out in the hall."

And, "Sadness is having your friends run away."

With each workshop and the wave of children's poems it brings, we realize that children tend to respond with *feeling* to a greater extent than any of us had realized. Seven-year-old Judy (12), who seems so gay and carefree, writes this:

A kitten is a little thing

That's huggable.

The sound it makes

When you are lonely

Fills your heart.

Perhaps this sensitivity of children explains their complete affection for *Prayers from the Ark* written by Carmen Bernos de Gasztold and translated from the French by Rumer Godden (13). Although brought out as a book for adults, this exquisite little book is adored by children of all ages.

I think, if children could have only one volume by a single poet, their choice would be *Prayers from the Ark*. Each prayer is from a different animal in the Ark—the pig, the horse, the little ducks, the giraffe.

As each creature offers up his prayer, we realize that this sensitive French woman is picturing her world with realism that has tremendous emotional impact. The pig grunts and snuffles, full well that he will be made into bacon. The goldfish makes the weary round of his prison of glass, always seeking escape which never comes. The elephant is embarrassed by his great self, shamed by the damage done by his big feet. The old horse, standing on thickened legs, has only his loneliness to offer up to the Lord. Even the tapering foal mentions the "uneasiness that runs through the whole world" and asks that God "set a star to watch over me and hush my fear" (14). The plaintive pleas of each animal seem to touch the hearts of children.

Is this what children find so appealing about the prayers from the Ark? Is this why they ask to hear them so many times that they can correct the slightest slip of the reader? I am beginning to think so as I hear more and more children commenting on the tragic notes that ring out to them.

Now we are finding children eager to write their own prayers from the Ark. Of those we have received from children, little animals and insects are most frequently represented. The bee protests the threat of DDT, the mouse wants to eat from a big dish, the snake asks for a singing voice to replace his dreaded hiss.

Children seem to find satisfaction in putting themselves in the place of these lowly ones. They think of these animals realistically—in terms of hard-

ships and cruelties—and they respond from the heart.

The new realism

All of this seems to show children's growing interest in the harsh reality of the world around them. For most of them, this means crowded city streets rather than "the host of golden daffodils" that many of us grew up with.

Bethlehem kindergarten children responded to the glowing steel mill of their city with greater feeling than they did to a carpet of autumn leaves. The Bangor youngsters chose to write about the ugliness of the quarry rather than the seedpods and tall grass the teacher had collected. Apparently, in both cases, children found a relationship with reality which was deeply personal.

It should not surprise us, then, to find them veering to the realistic poetry of the bolder, more modern writers. Carl Sandburg, who wrote of Chicago as "hog butcher of the world," is a favorite of youngsters in the middle grades and junior high school. Langston Hughes, Charles Reznikoff, and Gregory Corso speak the vigorous—often harsh—language these children like.

I have met with children of grades five to eight in several of Philadelphia's inner-city schools to try to find the poems these youngsters respond to most eagerly. Their favorite is "Taught Me Purple" by Evelyn Tooley Hunt which first appeared in *Negro Digest* (15).

*My mother taught me purple
Although she never wore it,
W'ash-grey was her circle
The tenement her orbit.*

*My mother taught me golden
And held me up to see it,
Above the broken molding
Beyond the filthy street.*

*My mother reached for beauty
And for its lack she died,
Who knew so much of duty
She could not teach me pride.**

We have many children whose mothers taught them purple, but did not teach them pride. Like Langston Hughes in the poem, "Harlem," theirs is "a dream deferred," drying up "like a raisin in the sun."

The melody of poetry sings to them as it does to all children. When the emotional involvement is in harmony with their experience, they embrace "the joy of seeking and creating." This, I think is the goal of all reading. Indeed, of all education. It is what poetry is doing for children today.

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Future Reading Instruction

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READING INSTRUCTION can and must be improved if education is to keep pace with the present atomic and computer age. This improvement cannot be delayed until better-trained teachers come from institutions of higher education. Improvements in instruction cannot await the results of research to answer many major questions. Therefore, if plans have not already been made and procedures already instituted to improve reading in each school in the U.S.A., the time to begin is next week, next year may be too late. Vigorous leadership and enthusiastic support are needed in order to approach quality education for all future citizens.

Administrators, supervisors, and

reading consultants are charged with the leadership. Every reading teacher, classroom teacher, and librarian can assist in this urgent task. Their close allies will be the colleges and universities that prepare new teachers. Support for improved instruction must come from publishers of textbooks, basal readers and supporting materials, publishers of trade books, newspapers and magazines, and the new industrial combines supplying teaching machines and computerized instructional materials. Parents and the public have been aroused and show readiness to add their support.

Where to begin

Readiness for reading begins in the

home. Many parents are eager to help their children and are searching for guidance. The resources most available are the popular magazines and newspapers which tend to specialize in the spectacular approach. In a few instances, schools are providing guidance for parents that harmonizes with the school program. The great majority of schools, however, have failed to capitalize on this valuable resource. In fact, many schools resist offering help to parents. A tremendous opportunity lies within reach of schools which will use it wisely.

Increasingly, parents who are unprepared to provide readiness for reading have access to preschool programs such as Head Start and nursery schools. Kindergartens are becoming commonplace. There is no doubt that reading can be improved by beginning at these levels. The question of how to begin has not yet been answered. Some would shift the formal beginning reading program down to earlier years while others would recognize the facets of reading readiness to be improved by specific types of instruction (18). Probably each procedure should be offered to children for their choice (1).

Studies such as those by Durkin (9) demonstrate that some children learn to read before age six without any school instruction. No estimates can be made of the number of pupils who might begin to read if teachers encouraged learning and if they adapted methods and materials to abilities and interests. Is there any reason for failing to give younger children an opportunity to begin to read?

Emphatically, the opportunity does not imply the same expectation for all, especially those pupils who are not interested in reading or who have not acquired some or all of the abilities which facilitate early reading success. Among the recognized factors considered essential are visual perception, auditory discrimination, ability to lis-

ten and follow directions, left-to-right orientation, and some level of language understanding and facility.

Visual perception, a term describing a composite of abilities, has been analyzed into some of its component parts. The ability to hold a figure in mind against distraction (12) has been repeatedly shown to account for nearly one quarter of the variance in early reading. Visual discrimination, particularly of letters and words, appears to be important to reading success (2). Therefore, teachers in kindergarten or first grade should appraise visual perception and provide experiences to strengthen it to insure reading progress. Spache et al (19) demonstrated that visual perception could be improved and was helpful to reading progress even among pupils whose instruction in reading was delayed. His study offered examples of simple exercises that teachers could use readily. Manning (13) developed a levels-approach to preparation for and beginning reading instruction which may serve as a guide to teachers.

Likewise, auditory discrimination has been studied sufficiently to know that it accounts for a portion of the variance in reading achievement, especially by third grade. The amount of influence and the responses to instruction to improve auditory discrimination are likely to vary, depending on the accuracy of the tests and the kinds of instructional materials used, but improvement makes a distinct contribution to reading progress.

Ability to listen has been inferred; as a rule teachers read to young readers. Without doubt, a more carefully planned program of instruction could lead to improved comprehension of stories (22) and of ability to follow directions. A by-product may be increased attention-span which has been shown to relate to early reading achievement.

Left-to-right direction can be taught

consistently in following pictures or stories, drawing lines, and at any other appropriate time. Teachers who read to children have often lost this chance to build an understanding essential to reading.

Because of the individual differences of young children, a flexible program is essential. A new look at the curriculum of the kindergarten is in order. In-service training for a large number of kindergarten teachers would give them the tools for diagnosis of abilities that undergird beginning reading and the incentive to experiment in developing many basic abilities which would give their pupils a distinct advantage in first grade.

Concern is often expressed about using elsewhere the books and other instructional materials now considered the sole property of the first-grade teacher. This problem needs immediate attention because it is not defensible to deny children their right to reading progress because of the numbers on the spines of books. A wealth of instructional materials is available today. If more than lip service is given to individual differences, books and curriculae should be no deterrent to meeting these differences. All pupils are entitled to have maximal opportunities to read, beginning when they are ready to start.

Following through

Reading instruction in the primary grades needs careful scrutiny. The importance of early success to later achievement has been shown by a number of studies (3). It seems axiomatic that the best teachers are needed at the beginning. It is especially important that the teachers be flexible and able to use a variety of approaches rather than attempting to fit children to a single approach.

Obviously those children who already read need to continue immediately. The practice of providing reading readiness activities for all children

is a waste of time for some and even becomes a deterrent if they are bored. Studies such as those by Durrell (10) and the recent one by Spache (19) attest to the value of beginning reading instruction immediately. Children who read deserve stimulating instruction regardless of the curriculum for average pupils at first grade.

Methods for teaching beginners has been the topic of heated arguments, both inside and outside the profession. When defensible solutions to this problem were not forthcoming, the U. S. Office of Education supported the largest cooperative research project ever undertaken to compare a large variety of beginning reading methods. In their report from the center that processed all of the findings, Bond and Dykstra (4) concluded that no single method was distinctly superior in all situations and that there was no "best method." Shortly thereafter, the debate was reopened by Chall's book (6) in which she came to different conclusions about the "best method" to use for beginners. Perhaps the best method for the greatest number of children depends on the strength of conviction of the teacher that a given method is most effective. If so, Bond and Dykstra's advice to pay more attention to teachers and the learning situation may be the best policy for future planning.

The accumulated research demonstrates very convincingly that several approaches to beginning reading may be offered to young children rather than relying on any single approach as has been the usual practice. Experience has shown that many learn easily by the whole word approach. With increased attention to natural language patterns in materials, this approach will continue to be useful. However, children who prefer auditory modalities may begin reading easily by following stories on records or tape. As they listen and see the words of the

story, they learn to match pages, sentences, and words. Left-to-right orientation is required to follow the story. The language need not be simplified unduly to provide practice in recognizing commonly recurring words, thus developing a sight vocabulary.

In instances where the whole word approach proves to be confusing, some children may profitably approach reading by learning phonemic-graphemic correspondences; or, the experience approach, accompanied by writing may have just the right appeal. Proper choices among and blending of these approaches are likely to enhance learning on the part of all pupils.

The foregoing suggestions imply that teachers of beginners should profit by acquaintance with a number of approaches to reading. Moreover, these teachers can operate far more effectively if they can diagnose early problems and reteach immediately to prevent prolonged failure. The time has long passed when giving all children "more of the same" is justified, either by research or experience. Likewise, pacing of pupils' progress through the early stages of reading will surely vary with the learning rates of children.

Some schools are attempting to solve the problem of individual differences through organizational changes. Almost all studies have shown that changes in grouping do not help unless they are accompanied by equivalent changes in practices and by reasonable expectations. While the ungraded primary organization helps to relieve teachers of common expectations in achievement of all pupils, this flexibility only allows for differentiation, it does not insure adaptation to individual differences (15). Therefore, schools need not wait for major organizational changes to free teachers to adapt to pupil differences.

So far, nothing new has been offered to improve reading instruction for the future. Instead, what is already

known and practiced in a few schools is reemphasized as deserving of wider application. In short, the suggestions involve flexibility in providing readiness for reading, beginning instruction, and that for children who already read.

In addition, a few current practices might be reconsidered in view of recent research. Studies done at Cornell (11) show that as children begin to read they search for clues to recognize words. Clay (8) confirmed this finding and supported the contention that it is essential to teach as many clues as children can learn, as early as possible. Indeed the evidence on expecting beginners to read orally in natural speech patterns mitigates against the delineation of individual printed words. In an effort to match print with speech, some children found it necessary to point to each word, a practice that has long been discouraged by most teachers. As the function of the white spaces between words was fully understood and as pointing became less essential, children often read in a staccato fashion as though they were marking each word with their voices. In view of this and similar findings, it may be that emphasis on smooth expressive oral reading defeats one of the essential aspects of learning to recognize words. Neither pointing nor staccato reading needs to continue beyond the early stages and both should be abandoned as soon as word correspondences have been established.

As many cues as possible need to be introduced as early as they can be learned: semantic, syntactical, language pattern, morphological correspondence, and the like. As each is learned, young children need time to solve words; therefore, pressing for immediate responses frequently diminishes pupils' practice of cues and results in guessing. Placing a premium on immediate recognition of words is useful in testing instantaneous sight vocabulary, but it is of little value in

helping a pupil try one cue after another until he solves the word. Furthermore, errors made should be useful to teachers in determining how to help pupils at this level.

The balance between oral and silent reading has always been difficult to determine. Three purposes for reading orally have generally been accepted: for diagnosis, for conveying a message, and for artistic representation. To these, a fourth purpose may be essential—confirmation and reinforcement. Several studies have shown that saying words and sentences orally facilitates word recognition. Perhaps silent reading is introduced too early for many children. This practice may account for whispering and mouthing words. Not only children but adults who encounter difficulty revert to oral reading. Experimentation is needed to find the most appropriate stage of growth at which to begin the transfer from oral to silent reading.

In general, children need far more practice in reading than most get in order to develop fluency and security in decoding. For many, a small share of a basal-reader lesson is their only practice. Personal reading has been highly recommended as a source of satisfaction and as motivation for increased competence. These purposes for personal reading are highly endorsed. It is suggested, however, that personal reading of interesting content also provides necessary practice which should reduce the cues required to recognize words. It is strongly recommended that a wealth of materials be provided and time for personal reading be set aside as an integral part of the reading program.

Before considering the next steps, it may be well to summarize what has been proposed. There is evidence to suggest that in the primary grades reading instruction can be improved. Specific suggestions include: 1) providing differentiated instruction from

reading readiness to any reading level pupils can reach; 2) offering a variety of approaches to beginning readers rather than a single approach; 3) diagnostic teaching with priorities placed on decoding accompanied by gradual introduction of the comprehension and interpretation skills; 4) ascertaining that beginners recognize word-for-word correspondence between printed and spoken words, permitting "crutches" such as finger-pointing and staccato reading for a short time if needed; 5) delaying silent reading for pupils who need additional reinforcement in learning words through oral reading; 6) allowing time for beginners to solve words and using errors as the basis for needed instruction; and 7) encouraging personal reading as early as possible.

Moving ahead

It is unfortunate that by the middle grades many teachers appear to believe that all children have learned to read and henceforth will read to learn. Less flexibility and adaption to individual and group differences than in the early grades often are practiced, but the needs are fully as great. Even though the time available for teaching reading is reduced by additions to the curriculum, adaptations must be made if all pupils are to continue to make progress.

In addition, the content of printed materials believed to be appropriate for these years is less familiar and further from children's experiences. The vocabulary increases markedly, especially in the different content areas, as does the variety of language patterns. If earlier emphasis has been placed on learning the cues to solving words and on determining what the author said, at the middle-grade level emphasis may properly be placed on identifying the cues to the message the author meant to convey. Too often this as-

pect of understanding is neglected at the middle-grade levels.

To improve instruction during these school years, a few of the many possible suggestions are offered in the remainder of this section.

First, if continued instruction in learning to read accompanies reading to learn, growth in both aspects appears to be enhanced. Many pupils still need help with decoding, and continuous emphasis on the variety of meanings of many words is crucial as these words are met in new contexts. Most children should attend to literal comprehension of passages of increased difficulty and complexity. In preparing for competency in independent reading, pupils should learn to determine the relevance of different selections to a given topic; this ability requires them to read several sources, to summarize and synthesize. From these few examples of expectations it should be clear that teachers will profit from using a variety of sources rather than just a single textbook for their reading instruction. Another implication is that assignments, guidance, and questions asked must go beyond the factual level which requires only direct recall. Dealing with this type of question calls for more time and interchange of ideas than is needed for reproducing a statement from the text. Often unequivocal answers cannot be given so that the teacher guides the discussion to arrive at the best consensus, demonstrating the kind of reasoning and the selection of evidence to support one answer in preference to another.

Second, emphasis should be placed on rational judgments about materials so that pupils will develop the foundation for critical reading. No longer can we afford to have children, even in the middle years, say "I know it is true because it says so in my book." Children need encouragement to question many statements and conclusions

in books, newspapers, magazines, and other sources. Indeed, every teacher should expose children at this level to different versions of the same event or situation and to guide them in using available resources to judge accuracy and worth of each source so as to arrive at defensible conclusions.

Third, after fluency and understanding have been achieved, pupils may profitably begin to learn to skim. The impact of Wood's "Reading Dynamics" program (24) and subsequent analyses (21) of it reveal the tremendous need that adults feel for coping with the volume of print encountered daily. Little if anything has been done to teach skimming until recent years. During the middle grades, therefore, pupils can learn to locate specific information, such as proper names and dates, the answers to questions when they are given in the same words, and the like. They can learn *when* to skim or read rapidly as well as how to do it.

Fourth, reading in each of the content areas is an essential part of the developmental reading program in the middle years. There is general consensus among experts that the attitudes and skills are taught best along with the content. However, teachers find it difficult to divide their attentions between teaching the curricular knowledge to be acquired in science or social studies and the reading of the materials. Consequently, the suggestion is made that, periodically or as needed, the reading lesson include the appropriate way to read arithmetic problems, science, and other texts because reading periods tend to concentrate on literary materials. Such instruction might include a study of vocabulary, symbols, maps, graphs, time charts, patterns of thinking (inductive, deductive), and the appropriate rates of reading in each area.

Fifth, as in the earlier levels, instruction should continue to include personal reading, not incidentally but

as an integral part of the program. Some children will choose to read science fiction, science magazines, or other informational materials. Others will choose to read fiction. All pupils need access to a wide variety of books which satisfy their interests and needs. Individual conferences about personal reading have proved to be a tremendous motivating factor (16) as they demonstrate that the teacher places high priorities on the use of reading as well as on learning to read better just to score higher on end-of-the-year tests.

Continue instruction

In the junior and senior high school, teachers often expect students to have reached maturity in reading. Standardized test scores, sensitive administrators and teachers, and even the students are aware that this condition is not true. Frequently retarded readers are given special help by remedial teachers, and slow learners may be placed in special English classes. Average and superior readers are usually given assignments without reading guidance. But gifted children state that they, too, need instruction in reading (20). Most teachers who have specialized in various content areas profess no competence or interest in teaching reading except for some English teachers whose major competencies lie in reading literature. Without further knowledge of reading most teachers could give considerably more assistance than they do. Three specific suggestions are offered as examples.

First, the vocabulary unique to each subject area, or with meaning different from common usage, can be taught. Several studies (5) have shown the close relation between vocabulary and knowledge acquired relating to different topics. Many effective procedures for instruction have been published so it is not necessary to elaborate on technique.

A second procedure suggested is to offer guidance in preparing assignments. For example, rather than telling students to read a chapter or a given number of pages, why not suggest what is to be learned from the assignment? Perhaps a few parts can be skimmed to get the general ideas; other parts would be read carefully to remember certain kinds of information; another section may be judged to illustrate the kind of reasoning appropriate to the topic. In the last instance, students might be asked to follow the logical development of the topic, look for errors in the logic, defend or question the conclusions, and the like. Such assignments help students apply the flexibility of reading skills which many have acquired. At the same time, students can acquire the information and attitudes of the content area. Assignments to read differently for different purposes are rare according to studies of high school students (17). It seems clear that this procedure would enhance reading competency.

A third suggestion is to plan the kinds of questions that are asked so that the purposes for reading will be met. Smith found that many good readers really "read their teacher." For example, some students noted that one teacher always asked for all of the minute details so the students almost memorized the text. Another teacher usually asked thought-provoking questions; then the students thought about the ideas in their assignments. Different kinds of products of reading may be obtained by ascertaining that questions asked are in harmony with purposes set.

A fourth suggestion concerns personal reading. Each teacher has a unique opportunity to stimulate his students to read more than is assigned. Studies (14) have shown that personal reading reaches a peak in the junior high school years and then decreases.

If each teacher could use a few minutes to acquaint students with some books, as do many teachers and the coach at the Laboratory School at the University of Chicago, personal reading may become habituated and carry over to adult years.

The suggestions offered are not new, nor do they attempt to cover the broad range of reading competencies. They are offered as examples of some ways in which reading instruction for the future could be improved by applying what is already known. It is hoped that as small improvements in instruction are instituted, major reassessments of total curriculum and practice will be made.

The reliance on standardized tests alone to determine reading competence has limited the scope of reading instructions in some schools. Hopefully, newer tests will be forthcoming and will embrace additional skills and abilities. The studies at Ohio State University (23) reveal that critical reading can be taught in the elementary school. This type of instruction is urgently needed beyond the elementary grades. Standardized tests may be devised to determine levels of competence in using printed materials critically.

In the future, reading instruction must not be discontinued until it reduces the higher level of illiteracy described by Chase as failure to read reflectively through an active internal dialog. He emphasized the value of abstracting ideas from print but went on to state ". . . but, if we stop there, we are continuing the production of higher illiterates whose ability to absorb and recall may be very great, but whose capacity to understand themselves and the world in which they are living may be very small" (7). To date, only feeble attempts have been made to reach this goal.

Innovations and future instruction

Individual teachers, researchers, and

the wealthy combines of industry are searching for a "breakthrough" to revolutionize reading instruction. It is difficult to anticipate the outcomes of all of the talents being assembled to improve reading competence in the next decade. However, the insights, ideas, and new successful experiences of every teacher will add to the accumulated knowledge. With so much to learn in such a fundamental area as reading, and with the future of education at stake, each person must make his contribution whether it be large or small. From all one knows at present, the contribution of each classroom teacher will make the greatest difference in the next generation.

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Reading Instruction in the 1970's for Megalopolis or Center City

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DURING the past ten years one has witnessed a remarkable development of interest in the educational problems of the center city. While teachers in center city schools did not need to be told that the decay of the city had had a devastating effect on the schools in which they taught, apparently the rest of the greater community had not any awareness of the conditions which existed in the ghetto schools.

Popular novels developing the theme

of blackboard jungle were forerunners of the more obscure sociological treatises dealing with the center city schools. Such books as *Dark Ghetto*, *Education in Depressed Areas*, *The Inner-City Classroom—Teacher Behavior*, just to mention a few, focussed attention on the plight of an abandoned population of school children taught in rat-infested schools, located in dangerous and neglected neighborhoods.

At the present time the focus of

American educational attention is on the center city. Whether the present efforts will result in better education is problematical. School populations have been mixed by bussing to prevent further segregation of the poor. Ungraded primary classes and team teaching have provided new approaches to the grouping and teaching of children. Textbooks have been designed emphasizing the racial, social, economic, and educational status of the learner. Efforts have been made to rid the ghetto schools of the WASP influences by integrating textbook characters, honoring minority groups in the social studies, and recognizing the learning disadvantages of the poor. Attention has been focussed on intervention programs for the very young slum dweller and on the upgrading of education of his parents. Programs of work-school have been developed for the teenaged dropout of center city poor families. The great percentage of Head Start programs and the special educational efforts made possible under Title I of the EASE have been developed for the poor children of the center city.

All of these efforts are necessary and need to be multiplied; and it looks as if the recent rush of protests, violence, and destruction in the center city will not allow anyone to forget the plight of the poor city dweller. In fact, America has barely begun to provide the help that is needed to equalize the educational opportunities and employment possibilities of the dwellers of city ghettos in general and the Negro minority in particular.

However, while the center city plight has caught the imagination of socially conscious Americans, an equally grave educational program has been developing almost unnoticed in the great megalopolises of America. This article will develop the thesis that if the U.S. is to continue its role of world leadership through a superior

educational system, then it must re-evaluate the great suburban areas that have developed in the past 20-40 years and recognize that problems of the same or even greater magnitude in terms of the education of youth are occurring in megalopolis as exist in the center city.

In order that one understand megalopolis, think for a moment of that vast area which stretches from Washington, D. C. to Boston. The area has been well described by Jean Gottmann in his book *Megalopolis*, written for the Twentieth Century Fund. Within this megalopolitan area, known as Boswash, live more than one third of the people of this nation. While the huge urban complexes of Washington, Baltimore, Philadelphia, Newark, New York, and Boston dominate the scene and capture most of the headlines devoted to any topic, good or bad, the bulk of the people live in between the urban centers in villages, small cities, suburban towns, developments, or scattered pockets between every urban-like cluster.

Megalopolis is dominated by the automobile. The population is highly mobile, and its heterogeneity increases each year. The mobility in any given sector is upward, sideways, and downward. The trend is usually from center city, to city fringes, to the first circle of suburbia, and on to the elite semi-rural estates of the new aristocracy. Each move from the center city involves more expense, and the last move outward is usually the one that breaks the economic back of the family and forces it to retreat back to the city again.

It is within this state of megalopolitan flux that the ignored schools, about which the writer is concerned, exist on names drawn largely from taxes on single family homes. The typical community is characterized by votes on bond issues for badly needed buildings which can be defeated or passed by

what seems like a cranky whim of the taxpayers; by transient school superintendents and teachers; by fleets of expensive school buses; and by hordes of arrived, newly arrived, and still arriving children.

Perhaps a view of Centerville, a typical district school in the megalopolis, will make graphic the plight of many Centerville was once a crossroads hamlet of 250, located some thirty miles from the center of one of our large Boswash cities. The ugly red brick building which dominated the busy corner for many years was the community school. The school served some 100 pupils in grades K to 8. When pupils completed Centerville school, they were usually bussed to the high school in Huntingville, some seven miles away. The serenity of Centerville, protected by potato farms, nurseries, and duck farms, was undisturbed from 1820 to 1945. From the last year of World War II to 1968 Centerville has been transformed in every respect. Today 25,000 people live in and around Centerville. The potato fields are covered with housing developments. The last nursery is ready to close up its greenhouses, and the ducks are long since silenced.

The red brick school house is still connected with the educational enterprise as a house for tools and machinery of the building and grounds staff of the school. The Centerville school system, now a sprawling enterprise, spreads out over an area of thirty square miles. A large educational palace, located in the center of the district, houses some 1700 high school students. On the eastern and western extremities of the area, nine miles apart, stand two beautiful junior high schools—one crowded with 1200 pupils, the other holding 900 pupils but expecting to be at capacity, 1200, in two years or less.

Nine 600-pupil elementary schools are scattered throughout the school

district. In all, the school system houses 9200 pupils. Projections suggest that by 1975 the school population will reach 20,000; and the community, already screaming about taxes, will be asked to build nine new elementary schools, two junior high schools, a new high school, an administration building, and bus garages, and to begin to think about replacing or rebuilding the original, jerry-built, elementary schools erected between 1945-1955.

The problems of buildings are for others. Concern here is with the educational program—the pupils, teachers, and administrators and their interactions.

Consider the location of the schools in the district for a moment. The west side of the district is nearest to the city and is bordered by a highly mobile community which is presently saturated with former city dwellers. A small area of this once glamorous suburb is now slum-like in appearance. The population of the neighboring suburb, newly arrived from the eastern side of the city, is suffering from being both overextended economically and deprived because of its former socioeconomic and educational status. Two of Centerville's elementary schools border on this suburb. On the northwest boundary of the district one finds another elementary school. It borders on a community which, due to the fact that cheap dwellings were built to house migrant farm and nursery workers, now is a suburban ghetto. The commissioner of education of the state is seeking ways of closing the schools in the ghetto suburb and attaching portions of the school population to each of the more affluent neighboring suburban school districts. The northwest corner elementary school has a gradually changing population in terms of racial, social, and economic status. Five years ago Negro children and children from poor white families began to appear in the school. Today

30 percent of the school children are considered deprived or neglected.

As far as the other west end elementary school is concerned, it has a relatively mobile population of pupils who come mainly from the suburbs closer to the city and then move east as parents seek a higher socioeconomic neighborhood. Some pupils drift into the schools from the more affluent East as their parents find that they have overextended themselves economically and physically. Fathers of such families, moonlighting after driving thirty miles into and from jobs in the city, found they could not keep up the pace. Mothers, forced to work, found the new life an unhappy and dissatisfying one as they were made aware that the morale of their children was disintegrating from lack of parental care.

A study of one of the western schools reveals that from September 1967 to April 1968, 85 pupils of the 600 left the school, some bound east and "upward," some bound west and "downward," others transferring north or south—with families remaining in the same socioeconomic milieu. During this same period, 90 pupils had joined the school. A few had come from the city; some, from the near western suburb; a few, from the east; and others, from random schools both public and private.

Of great importance is that of the 90 pupils joining the school, only 45 had accompanying records which were meaningful. The other 45 were without records except for meaningless report cards. Teachers, the reading consultant, and the psychologist of the Centerville Elementary School spent time studying each child in order to make placement for teaching as sensible as possible. An actual visit to each teacher receiving new pupils and losing others revealed that in most instances the teacher felt that the exchange was not in his favor. Invariably the pupils from the city and

some city suburbs lacked basic skills. Pupils from the eastern suburbs often seemed upset, lacking in discipline. Of course, the teachers might have exaggerated, but the observer was able to visit the children who had moved in and to look at the records of those who had left. The teachers seemed to be right in their appraisal of the situation. The exchange was not often to *their* best interests.

The strategies of teaching the newcomers usually included particular attention to reading, writing, spelling, and arithmetic skills.

If the teacher taught the magic three-group plan in a heterogeneous, self-contained class, the new pupils usually did not quite fit. If the pupil was badly disoriented—only a few such pupils were—then pupil reaction to the newcomer could be negative. Pupils readily noted the discomfort of teachers, often joined forces with their leader, and added to the problems of the poor student.

Occasionally of course, the teacher received a newcomer who fitted in beautifully with one of the operating groups and might even lead them. The observer met several of these very welcome additions to the classroom, but they were in the minority.

Another important issue raised by the entrance of new pupils is the need to educate the parents and pupils alike to a new set of ground rules. Newcomers only need to raise a slight fuss to upset teachers and administrators alike.

Teachers are affected in subtle ways by even the modest mobility suggested above. After all, more than two thirds of the pupils are steady customers, but somehow the arrival and departure of one third of the population seems to outweigh in almost every area the stability created by the two thirds who remain.

There are two critical areas noted insofar as reading instruction for those

entering the school is concerned. The first relates to the pupils entering the first and second grades who have not yet begun to read at the beginning levels. Often teachers are unable to cope with the newcomer. If a remedial reading teacher is available, the best that can be done in most cases is the giving of a confirming diagnosis which simply indicates that the teacher was right. Johnny hasn't learned to read at the beginning level. While many teachers are successful in teaching beginning steps in reading to small groups of very young pupils, it often seems impossible for the same able teachers to pick up the child who has had an unsuccessful beginning in another first grade or has spent his time in first and part of second grade without learning what was expected of him. Teachers consulted with on this problem are themselves confused by the fact that "nothing" they can do seems to work, and this conclusion resulting in spite of the fact that they were successful with hundreds of others.

The second critical area relates to the middle grades and the pupil who enters the fourth or fifth grade with real deficits in his reading ability. He is not only a stranger but an unsuccessful one, and the impact of this diagnosis on the pupil and his peers is often drastic. Remedial help is needed if the pupil is to learn the content subjects through reading. Social studies, science, and arithmetic pose problems for the newcomer which the best-staffed elementary school often cannot cope with. The first superficial diagnosis of the pupil needs extension, and before very long a new "problem" reader has been identified and fixed in place like a butterfly pinned to a board.

A return to the larger scene reveals that five elementary schools in this school district send their pupils to the western junior high. Three of the schools, with relatively stable popula-

tions, supply six hundred fairly able pupils—"ready to go," in terms of the demand of the junior high school. The other two schools supply three hundred pupils of widely divergent abilities. In addition to having pupils of lower IQ's and reading ability, both schools are identified as those supplying the "trouble-makers." The three years of junior high school compound the problems of the poor readers and emotionally disturbed from the elementary school. In spite of good remedial and corrective reading the dropout die seems to have been cast. Some of the pupils spend a fourth year in junior high school but to little or no avail. They are merely older when they finally reach the senior high.

By the end of the ninth grade in this junior high school, some 30 percent of the population are not prepared for the academic demands of the senior high school they will attend. Marked by their transiency, inadequate reading, emotional problems, and socioeconomic status, many of these pupils will leave high school before graduation. Unless these pupils eventually learn to read with adequacy, they might well join the ranks of the semiliterate. Certainly many will not be fully employable in our modern society, dominated as it is by the need for all aspects of communication.

The senior high school, fed by pupils from the two junior high schools, is able to provide a sound educational program for the majority of its pupils. In spite of rumors or claims to the contrary, it is a two-track academic school. If one talked to the principal and his advisers, one would gain the notion that any pupil entering Centerville Senior High School could receive an education which would enhance his future. Close inspection of students and program reveal that this condition is not true. The cluster of inadequate pupils who have come from the West Junior High School and a few from

the East Junior High School fit in neither track. The academic program, of which Centerville High is proud, demands mastery of the language skills in particular for success. The nonacademic program with its offerings of business subjects, home economics, and industrial arts includes academic demands which are out of line with the abilities of the inadequate students coming from the junior high school.

Of course, the high school principal and his teachers have a conscience and do their best, but this best is not good enough. The provision of a remedial reading course for the tenth grade pupils provides the administration with the feeling that they have done "something" about those poor kids from West Junior High. A few teachers try to adjust their offerings so that the inadequate readers can learn something in their courses. By the middle of the tenth grade most of the poor readers get the message. The high school is not for them. For all practical purposes their academic careers end. The students either drop out in the tenth grade or hang out on the fringes of the high school scene until they are eligible for the armed services or for a job which appeals to them. Of course, a number of other things of a less pleasant nature can happen to separate the student from the school.

The Centerville school system can count then some 10 to 20 percent of the students who reach the tenth grade as academic casualties. These students cannot read adequately, are lacking in knowledge, and cannot profit from any instruction which demands mastery over language or arithmetic skills. The school system can justify its failures on the basis of family background, socioeconomic status, transiency, and a variety of psychological and intellectual problems, but the justification does not remove the fact that

Centerville, in spite of the high cost of its educational program, has allowed a large number of individuals to slip into the main stream of American life as semiliterate, more or less unemployable, and, to a certain degree, antisocial and often maladjusted.

Centerville's problem is relatively unnoticed and certainly not publicized. Yet the Centervilles of megalopolis have probably produced a number of dropouts equal to those produced by the much better advertised center cities in the same megalopolitan area.

What solution does one have for the problem? Perhaps one could suggest a rereading of Conant's suggestions for a new design for the American high school. One might suggest a changed emphasis in academic techniques in the junior high school—a strategy which would focus on developing literacy above all else for those pupils who cannot read adequately.

One might also advocate a more realistic appraisal of the elementary instructional program which might lead to a more precise and ongoing diagnosis and treatment of any pupil who is unable to read as well as predicted, considering his ability. The major expenditure for instruction might be made during the primary grades so that teacher-pupil ratio is more reasonable and pupils are not allowed to progress in failure because of the inability of primary teachers to deal with large groups of pupils.

For the moment one has attempted to focus attention on the plight of the schools in the mobile suburbs of a megalopolis. This plight is as serious in magnitude and total effect as that of the center city and equally deserving in the attention of the nation. Unless this attention is given, the problem of the semiliterate in America will never be solved.

Reading for the Gifted

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FEW CONVICTIONS in education have persisted as long as has the concept of the "gifted" child as an individual of high IQ. This concept usually includes the belief that the IQ is a relatively constant, unchangeable index. This definition of the gifted child arose with the advent of the intelligence test and the comprehensive studies of L. M. Terman, who assigned the term "gifted" to the child earning an IQ of 130 or above. In early studies, about one percent of elementary school pupils obtained IQ's of 130 and higher. Recent studies disclose larger numbers of such children. Thus, James J. Gallagher, after summarizing the studies, concluded that about 2 to 4 percent of children have IQ's of 132 or above and may be referred to as "gifted" (2).

Characteristics of the gifted

Three widely quoted studies of the gifted were made in the twenties by L. M. Terman, Leta Stetter Hoitingworth, and the writer. The results of the three studies were similar.

For example, in the writer's group, the following characteristics were found. The children were not physical or social misfits. They were slightly above the average of a control group in their physical development and social adjustment.

These children showed remarkable attainment in reading ability. Thus 38 percent learned to read by five, and some as early as three or four. An outstanding characteristic of these children was their unusual vocabulary development which appeared early and continued to be remarkable. For example, a boy of ten said, "Flaunt means to show or display with intent to show." And Mars was defined as "a planet, god of war, also a verb."

These children not only made rapid progress in language acquisitions but usually also learned rapidly in other areas. By the time they were in the fourth grade, they had, on the average, educational information and skills of children classified two years above them. Many equalled the average scores of children in classes three or four grades more advanced.

Such an exceptional child was six-year-old Bill, who arrived at school the first day carrying the book *All About Electricity*. The principal said to him, "That's a good book. I hope you are enjoying the pictures." Bill replied, "I'll soon finish reading it. And I do like the pictures." Bill was actually reading, understanding, and enjoying this book. Moreover, he had already read a number of other books of third to fifth grade ratings in difficulty.

Like many other gifted children, Bill had parents who encouraged productive learning from the first. They recognized the importance of their role in providing rich and varied experiences for Bill, as well as for encouraging the development of his language ability and intelligence. But many children are not so fortunate as Bill.

Recently attention has been called dramatically to the great need of children generally for varied learning experiences during the period from birth to six years. Some writers are vehement in their insistence for more adequate opportunities. For example, Maya Pines writes

Millions of children are being irreparably damaged by our failure to stimulate them intellectually during their crucial years—from birth to six. Millions of others are being held back from their true potential.

Pines points out further that "the child's intelligence grows as much dur-

ing his first four years of life as it will grow in the next thirteen." Failure to provide intellectual stimulation during the early years will mean "a loss of brilliance" for middle-class children and "For the children of poverty, however, an unplanned intellectual diet in the early years means almost certain disaster—preordained failure in school and adult life" (7).

Undeniably there has been a great neglect of intellectual stimulation for young children, both in the home and in nursery schools. The value of varied opportunities at an early age has been repeatedly shown. The writer's studies attest to the importance of early opportunities and early learning experiences in the lives of the gifted. The children in his group typically came from homes in which abundant opportunities were given in their early years for sensory-motor and perceptual learning and for first-hand exploration of the environment. In these homes, language proficiency and reading abilities were nourished also during the early years. Under these conditions more than half of the pupils learned to read before coming to school. Such environmental conditions undoubtedly played an important role in accelerating the learning ability and increasing the intelligence ratings of this group. It is plausible to assume that the provision of such conditions would raise the incidence of superior children in areas in which deprivation and "disadvantage" are generally found. Improvement might also transpire in other groups. Thus the average IQ might be increased. The possibilities are indeed heartening. J. McV. Hunt comments

... it is not unreasonable to entertain the hypothesis that, with a sound scientific educational psychology of early experience, it might become feasible to raise the average level of intelligence—by a substantial degree . . . this "substantial degree" might be of the order of 30 points of IQ (6)

This hypothesis will require valida-

tion. We already know that environmental changes do affect IQ's greatly. No longer is the IQ looked upon as a product chiefly of hereditary factors and hence regarded as largely unchangeable. The pendulum has swung to an emphasis on the environment and opportunities for early learning as factors which influence intelligence. Programs to improve intelligence are proposed by several writers, for example, Siegfried and Therese Engelmann in *Give Your Child A Superior Mind*. This book is described as "a programmed, step-by-step guide, which shows you—simply and clearly—how to increase your child's intelligence." On the jacket it is stated further that

Before your child enters kindergarten he can. Learn the basic rules of language . . . Learn the alphabet, learn the names of the geometric shapes, and begin counting . . . Learn to spell, tell time, add, subtract, multiply, divide, understand fractions and basic algebra . . . Learn to read . . . Learn to deal with such complex mathematical problems as the squares of numbers, equations, factors and exponents. . . . (1).

Additional research should be undertaken in this area to test claims and validate hypotheses. However, it has already been shown that early learning opportunities have led to remarkable attainment of reading and language proficiency by many young children.

Investigations of children who read early

Recently, several investigators have stressed early instruction in reading. For example, Dolores Durkin in *Children Who Read Early* (Teachers College Press, 1966) describes the progress of children who learned to read before starting to school. Her group included not only gifted but average and somewhat below average boys and girls. In fact, one third of one group had IQ's of 110 and lower. Concerning this group, Durkin states ". . . the children who started to read at an earlier age entered the first grade with

superior achievement in reading and maintained their lead over a five-year period."

Notable was her conclusion that the children who learned to read before coming to school were not "a special brand of children" readily identifiable. However, their parents were characterized as having respect for learning and encouraging it in their children.

The writer's studies of gifted pupils who read early yielded somewhat similar results in so far as parents' attitudes were concerned. The parents of the early readers often read aloud to their children and answered questions patiently and fully. Four was the golden age for questions. As the children's experience was extended and enriched, they were encouraged to tell their own stories, and to listen to stories told to them. However, the parents did not put pressure on their children to learn to read. They did provide an assortment of books and magazines at home: alphabet and number books, dictionaries, easy-to-read books, encyclopedia, children's magazines, and story books of many kinds. Spelling, writing, and counting were introduced to some boys and girls. Library books were also read by some children. The children in this group usually learned to read without much direct help or specific instructions from the parents.

Certainly there is now enough evidence on early learning to justify changing a commonly held concept of the role of reading in the kindergarten. In many kindergartens reading instruction has been largely outlawed. This extreme position should be altered. Instead educators should strive to create an atmosphere conducive to reading readiness and reading at this time. There might well be introduced in the kindergarten the types of activities Durkin describes as "exposure" experiences. These would include emphasis on the making of simple experi-

ence charts dictated by the children, wide use of labels for names of pupils and objects in the classroom, and many other language activities associated with the development of vocabulary and concepts. In this atmosphere for learning, the gifted child will utilize his reading ability as occasions arise.

The case for teaching babies and young children to read should be investigated further and evidence adduced to show the value, retention, and worth of such acquisitions. In the meantime, the writer would be reluctant to suggest the use of standard, uniform, inflexible materials for teaching babies and young children to read.

It is being found that many children can succeed in reading at age four or earlier. One of the most outstanding authorities in reading instruction stated

There are . . . factors which suggest that most children could learn to read in their fourth year. They learn to understand spoken language quite well by their second year, and psychologically there is little difference between learning, as it were, "to read" spoken words and learning to read printed words.

If children are to learn to read at an earlier age, there seems little doubt that methods and materials different from those commonly used in the first grade should be employed. Modern facilities for printing, however, make it theoretically possible to provide an abundance of materials which would enable a child who can receive a bit of shrewd guidance, largely to learn to read by himself (4).

Such materials are now being developed. The talking typewriter has been used effectively with very young children. adaptations of Montessori materials have been employed advantageously in experiments with "disadvantaged" pupils in several American cities. the effective use of the Initial Teaching Alphabet with four- and five-year-old children in England has been reported; and other innovations have been introduced successfully in our country.

It is possible that the general provi-

sion of preschool experience of the kind found in the homes of many gifted children who read early might increase the number of verbally gifted children. Such opportunities should enable many "disadvantaged" pupils to develop hitherto unexpressed potentialities. There is a need also to offer more adequate and challenging experiences for verbally gifted pupils in the schools. Although some important gains have been made in extending and enriching the curriculum for such pupils, the educational provisions are meager and inadequate at present (19). These opportunities should be enlarged. Moreover, in one's zeal for making much needed provisions for the "disadvantaged" pupil, one should not lessen his interest in the verbally gifted pupil. There is need, too, to give greater attention to the stimulation and encouragement of creativity.

Identification of the creative pupil

It has become clear that the use of standard measures of intelligence will not enable one to identify the creative pupil with a higher degree of accuracy. The recognition of this fact is not new. Indeed, many years ago, the writer pointed out that the overlearned materials of standard intelligence tests were unsuitable to elicit original, imaginative responses. He found, too, that the correlations between IQ and performance judged to be highly creative were low. Accordingly, he proposed that the definition of the gifted be expanded. As early as 1940, he suggested that "giftedness" should be estimated by observation of a child's behavior. The child whose performance is "consistently or repeatedly remarkable in a worthwhile type of human endeavor might well be considered gifted" (17).

It has recently been shown that very large numbers of highly creative pupils would not be identified were one to rely solely on IQ. For example, E.

Paul Torrance's studies led him to conclude that "about 70 percent of the top 20 percent on measures of creativity would have been excluded from gifted groups which were selected on the basis of intelligence only" (10).

Several investigators have attempted currently to construct measures of creativity (15). An examination of the tests and procedures suggested by workers such as J. W. Getzels and P. W. Jackson will readily reveal the complexity of giving and scoring these instruments (5). Although study and development of measures of creativity are highly desirable in experimental situations, the tests usually are impractical for classroom use (9).

Critics have stressed certain limitations in the tests and the need for caution in using them. Such criticism undoubtedly will lead to extension of the studies and clarification of important issues. Despite the inadequacy of the present tests of creativity, there are a number of practical and rewarding leads which teachers may follow in identifying and guiding creativity. E. P. Torrance has suggested procedures such as the use of a "new idea box" in the classroom to stimulate original unique responses (10). And he has suggested other techniques for encouraging creativity in young children.

A somewhat widely used and practical procedure suggested by the writer is referred to as the "work-sample" technique. In this approach, the possession of a gift is recognized by the pupil's performance in situations that stimulate original, imaginative, behavior (8).

The "work-sample" technique has been employed successfully in fostering creative writing. For example, the imaginative and symbolic film, *The Hunger in the Forest*, photographed by the distinguished cameraman, Arne Sucksdorff, was shown in about eighty classrooms located in thirty-four cities (19). The film, unaccompanied by a

commentary, presents a simple story of a hunter's exploration of the forest and shows him as he faces the problem of shooting members of a deer family. More than two thousand compositions, written by the children after viewing the film, were judged according to the extent to which the writing disclosed sensitivity, originality, and other creative characteristics. About ten percent of the compositions were thought to reveal exceptional promise. Many outstanding products were written by pupils of IQ's below 130, the lower limit sometimes suggested to indicate giftedness.

Another technique that is being employed with success involves children's reaction to the "open-end" story, a type of story teachers may compose from incidents described in newspapers and magazines (16). One such story is an appealing account, entitled "The Cat in the Wall," in which the disappearance of a child's beloved cat is described. After a long search, "meows" coming from inside one of the walls of the living room revealed the cat's location. Unsuccessful efforts were made to entice the cat to come out. Finally, the fire department was called and a hole was cut in the wall. As the family watched eagerly to see the cat removed from the wall, a "meow" at the front door announced a guest—the cat whose "meows" had last been heard coming from inside the wall. The children were asked to write letters telling how the cat got in and out of the wall. This story appeared in *Highlights for Children*. Among the many responses were letters that suggested unusual promise of creativity in writing on the part of many pupils.

Similarly in other areas, giftedness may be estimated by the extent to which pupils reveal remarkable performance. There appears to be an increasing tendency to think of the gifted as including pupils having

high verbal ability;
unusual potentiality for science and mathematics;
promise in arts such as music, creative writing, and dramatics;
proficiency in social leadership;
and
mechanical ability.

The "work-sample" technique is being used to identify the potentially gifted in each of these areas.

The foregoing approaches necessitate the use of subjective judgment by skilled persons in appraising the merit of various products. When criteria are lacking, it is difficult to differentiate among products referred to as creative. However, some progress is being made in the formulation of criteria. For example, Nina W. Walter (12) has presented some outstanding children's poems and has set forth criteria for selecting and evaluating them. It is desirable also for teachers and administrators to examine other practical suggestions such as those of Robert C. Wilson (13) in the form of devices and activities designed to help the child understand and practice the creative process.

In all this work it seems clear that certain factors are important in eliciting creative expression. The atmosphere of the classroom and the attitude of the teacher appear to be crucial items which sometimes present real obstacles to creative expression. It has been found that some teachers may be indifferent to or may resist new ideas and creative response. It appears necessary to encourage such teachers and many pupils as well to respect new ideas and to prize originality and creativity (11).

Again and again, it has been reported that creative pupils present problems in personal and social adjustment more frequently than verbally gifted pupils. It has been suggested that the verbally gifted pupil tends

more often to conform and to be liked by the teacher.

It may readily be seen that the possibility of employing reading to meet the needs of gifted and creative pupils is great. Not only will reading skill and wide reading help the pupil to gain information and expand interests but guided reading may aid him in satisfying pressing personal and social needs, as well as in building an appropriate ideal of self. It may also help him to understand and practice improved human relations.

Reading for gifted and creative pupils

One of the greatest needs of the verbally gifted child involves the provision of individually appropriate reading experiences from the beginning of his school entrance (14). If he is able to read on entering kindergarten or first grade, he should be encouraged to do so from varied reading sources that are individually suitable and appealing. In every class, opportunities should be provided and guidance offered so that the gifted pupil will continue to develop his reading abilities and to apply them widely.

For gifted children who have not learned to read before entering school, provisions should be made for rapid acquisition of reading skills, for the satisfaction and expansion of interests, and for meeting developmental needs through reading.

The following procedure has been found helpful in guiding the reading of the gifted pupil. It involves the administration of an interest inventory to the members of an entire class. Small groups of children with interests in common can be identified, and reading materials of varying difficulty can be made available to satisfy the variations in ability within each interest group. Thus, each child may select and share his discoveries from reading material at a suitable level. In this situation

the gifted child makes his contribution from reading challenging sources of appropriate difficulty.

Wide use of children's literature may provide further extension of interests. Gifted children, as studies have shown, usually have varied and rich interests. They collect stamps, coins, and specimens of various kinds; they frequently explore animal, bird, and plant life; they enjoy following discoveries in outer space; and in other ways reveal a large number of interests. There are, of course, some gifted children whose backgrounds are impoverished and who need to be encouraged to cultivate worthy interest patterns. For these children, as for others, the use of an interest inventory may yield clues of significance.

The role of interest is of foremost importance to classroom teachers who practice "individualized" or "personalized" reading instruction. In these classes, pupils are encouraged to select their own books and to become resourceful in the use of the library. Conferences with the children afford opportunities for the teacher to gain insights concerning each pupil's needs. Under such conditions, gifted children are stimulated to read widely, to develop and expand their interests, and to find genuine satisfactions in books. Similarly, the teacher who practices the language-experience approach will also seek wide reading as a source for expanding the horizons and deepening the interests of boys and girls.

In order to offer assistance to verbally gifted pupils who are in need of improved reading skills, the teacher should first ascertain the reading status and needs of every child. Conferences with each pupil may be of help. Specific suggestions for building skills should then be given according to the needs of each pupil. Gifted pupils often need help in reading critically throughout the intermediate grades and the junior high school.

In the high school, reading that focusses attention on problem solving is being encouraged and creative thinking is also being fostered. Questions asked by teachers are sometimes determined by the awareness of the intellectual operations involved in answering them. The following example of the Guilford system is given by James J. Gallagher (3).

ideal of self consonant with their abilities and promise. Such pupils sometimes find satisfaction and encouragement by identifying themselves with the central characters in stories. Thus, an insecure girl may profit from her discovery of the way another girl obtained the respect and sanction of her classmates in Eleanor Estes' *The Hundred Dresses*. A better apprecia-

Guilford System by Intellectual Operations

Operation	Example
Cognitive—Memory Convergent Thinking Divergent Thinking	Whom did Hamlet kill by mistake? Explain why Hamlet rejected Ophelia. Name some other ways Hamlet might have accomplished his goals.
Evaluative Thinking	Was Hamlet justified in killing his uncle?

Reading to satisfy personal and social needs

The suggestions offered are not limited to the verbally gifted who need challenge and enriched experience in reading. They apply equally to pupils who show outstanding promise in writing, art, music, and other fields. Repeatedly, E. P. Torrance has stressed the problems in adjustment displayed by the creative pupil, particularly in peer relationships. He states

tion and a fairer evaluation of his own father were gained by an unhappy boy from reading Meindert De Jong's *Shadrock*. Many boys and girls have enhanced their understanding of family life and its responsibilities by reading books such as Eleanor Estes' *Ginger Pye*. Identification with the characters in Sydney Taylor's *All-of-a-Kind-Family* has led some girls to a heightened understanding of social values and family life. Similarly, an aggressive child was stimulated to modify his own behavior by reading Clyde Robert Bulla's *Riding the Pony Express*.

It will be no news to guidance workers that peer groups exercise rather severe sanctions against their most creative members. In no group thus far studied has the author failed to find relatively clear evidence of the operations of these pressures. . . .

Many of the highly creative individuals are disturbing elements in classroom groups in elementary schools. The problem of teachers and guidance workers resolves itself into one of helping highly creative individuals maintain those characteristics which seem essential to the development of creative talent and, at the same time, helping them acquire skills for avoiding, or reducing to a tolerable level, the peer sanctions (10).

Biographies also offer abundant opportunities for children to become identified with wholesome characters whose life stories may inspire and foster the development of desirable ideals of self. Such reading is often of special service to gifted pupils whose aspirations are frequently inappropriate in terms of their youthful promise. Of course, reading alone will not assure this outcome but, accompanied by suitable experience and discussion, it will often prove extremely helpful.

It is the responsibility of the parent, the teacher, and the librarian to make available to creative pupils books which may help them to meet personal and social problems and to build an

The teacher is obviously a key figure in the realization of desirable objectives on the part of gifted children.

Effective teachers are able to recognize varied gifts in children. And they seek to offer such pupils individually suitable and challenging experiences. Provisions are made by them for the development, application, and extension of reading skills. Through reading, gifted pupils are helped to satisfy and enrich their interests, find solutions to personal and social problems, and build a worthy ideal of self. A program of this kind will not only equip the pupil for continued development through wide reading but will also afford the basis for lifetime satisfactions to be found in books.

Summary and conclusions

The writer has briefly summarized some studies of gifted and creative pupils and has indicated needs for revising long-held convictions and for modifying practices in the area of reading instruction.

First, the writer stressed the importance of early learning experiences in modifying IQ's and cited studies which suggest that the incidence of the gifted might be appreciably raised by providing more extensive opportunities for learning in early childhood. Suggestions for enrichment of the environment were drawn from studies of the early diversified opportunities offered gifted pupils and children who learned to read early.

Second, he stressed the value of early acquisition of reading skill and the provision of wide reading experience in fostering the development of the gifted pupil. He suggested also the value of introducing reading instruction early--perhaps at age four in expanded programs of education generally.

Third, he indicated the need for revising the widely held conviction that the gifted pupil can be identified solely by use of IQ ratings. Because of low correlations between IQ and various measures of creativity, the writer con-

cluded that the IQ reveals only one type of ability or promise. If the criterion for giftedness were limited to an IQ of 130 and above, one might miss the majority of creative pupils.

Fourth, he pointed out that the gifted pupil might be more defensibly defined as any pupil whose performance in a worthwhile type of human endeavor is consistently or repeatedly remarkable. He described some techniques that have been effectively utilized in identifying gifted pupils in various fields.

Fifth, he stressed the importance of considering reading as a continuous meaningful process designed to satisfy interest and needs. Some ways of identifying interests were set forth as well as means for satisfying worthwhile patterns.

Sixth, he described the characteristics of verbally gifted and creative pupils. It was pointed out that creative pupils often experience adjustment problems. And it was suggested that guided reading might help to alleviate difficulties and to promote human relations. Reading was looked upon as only one avenue in this endeavor. But, associated with an enriched program in the language arts, reading was considered a source for offering outstanding help to the gifted and the creative pupil in meeting his needs and in fostering his mental health.

Comprehensive programs for gifted and creative students are infrequently found in schools. There continues to be a neglect of such pupils as attention and opportunities are increasingly offered to the "disadvantaged" and other exceptional groups. Among the "disadvantaged" there are also many gifted and creative pupils who should be identified and helped to realize their potentialities. Thus, reading offers an avenue by which potentialities may be more fully realized and satisfactions may be heightened.

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Building on What We Know

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EVERY CHILD brings a language to school. For some time the linguists have been reminding us that the child of five or six is almost a linguistic adult. Unless he is seriously handicapped physically, mentally, or environmentally, he controls, with slight exceptions, if any, the sound or phonemic structure of his language; he

handles, apparently effortlessly, its grammatical core; and he knows and uses its basic vocabulary. Observations at Indiana University, those of Loban, Hunt, and others, support this claim and suggest that the limited structures one found children using in the experimental studies and those any one encounters through casual observation of

the free talk of children are only a small part of the child's latent repertoire. "The achievement of this repertoire is a remarkable example of self-education which the schools do well to build on. What the child has learned already he has learned under the pressures of the necessities and pleasures of daily living. If school is to continue the processes already started it must stir the same kind of pressure and kindle the same excitement" (3).

The child's preschool achievement

How has the child achieved this mastery of his language in the years between two and five or six? More information has been amassed in the past ten years on what the child does as he learns his language than the entire accumulation of previous years. Teachers of reading need to be aware of what the child has achieved and how he has achieved it because the task is to expand his command of oracy and help him achieve a like measure of literacy.

A study of the available research on children's language led Eric Lenneberg of Harvard University and Children's Medical Center to state the following:

The onset of speech is an extremely regular phenomenon, appearing at a certain time in the child's physical development and following a fixed sequence of events, as if all children followed the same general "strategy" from the time they begin to the period at which they have mastered the art of speaking. The first things that are learned are principles—not items: principles of categorization and pattern perception. The first words refer to classes, not unique objects or events. The sounds of language and the configuration of words are at once perceived and reproduced according to principles; they are patterns in time, and they never function as randomly strung up items. From the beginning, very general principles of semantics and syntax are manifest. Even if the maturational scale as a whole is distorted through retarding disease, the order of developmental milestones, including onset of speech, remains invariable. Onset and accomplishment of language learning do not seem to be affected by racial or linguistic variations (7).

Interesting examples of Lenneberg's points are found in the contributions of Miller and Ervin in the University of California in Berkeley in the work of Gleason, Menyuk, and others at Massachusetts Institute of Technology and Harvard. A brief sketch of evidence we all recognize, some of it with little thought for its significance, follows.

Children come equipped to learn any language, of course; and during their first year, while they do an immense amount of listening, they are also babbling, perhaps using all the sounds of all the languages from Arabic to Zulu. But by the first birthday the baby who lives in an English-speaking environment is uttering English-sounding syllables with English intonation. Then, following a period in which he makes do with one-word utterances which may carry the impact and meaning of entire sentences, there is a period of "telegraphic speech" when the child says, "David's shoe," "Sweater off," "Daddy come," "Blue truck," and the like. Researchers have found that at this stage it is impossible to induce the child to repeat an entire sentence. To say to a child at this stage, "Put the book where it belongs," or "I will not do that again," or "Now you say it" elicits the response "Put belongs" or "Do again." Not until the child has made the pattern his own can he repeat it.

Between the child's first two-word utterance at about eighteen months and his third birthday, the child learns all the essentials of English grammar. By the age of thirty-six months many a child can produce all the major types of English sentences, even up to ten words. And by the time he enters school at five years of age his knowledge of English is so vast and complex that no one has yet been able to program even the most sophisticated computer to turn out the sentences that a five-year-old can produce with ease and assurance (6).

The young child's intuitive awareness of principles of phonology and syntax is manifest at a number of points. He early learns that the plural form of a noun ends in /-s/ or its equivalent. He does not need to know that if a noun ends in a vowel or a voiced consonant like b, d, or g one adds a /-z/ sound. He says, "boys," "beds." He adds an /-s/ sound to "hats" and "trucks" and an /-əz/ sound to "wishes" and "matches." Having sensed a principle, he now applies it overconsistently to produce such combinations as "deers," "feets," and "gooses." The same awareness of principle is evident as he forms the past tense of verbs. The verb "played" ends in a /-d/ sound, "walked" ends in a /-t/ sound, and "waited" in an /əd/ sound. The child appears to recognize classes of words. He does not add an /-ed/ morpheme to a noun nor an /-s/ morpheme to form the past tense of a verb. He follows his pattern exactly, even with words that are irregular. He says, "My daddy buyed me a new balloon because I breaked my other one." Even as he becomes aware of irregularities in verbs or in comparatives and superlatives, he applies his intuitively sensed rules fairly consistently. He says, "I brang my new book today," following the pattern of "ring" and "sing" or "My new book is more better than my old one." applying both regular and irregular forms in the same sentence.

Incidentally, it is interesting to note that the child appears at this time to be doing just what the common folk of England did after the conquest of William of Normandy in 1066. That was a period when the government of England was carried on in the French language and only those whom Hugh Sykes Davies of Cambridge University calls "the little people" used English. and in approximately three hundred years they regularized, simplified, and

carried English forward at many points. In fact, Davies holds that, given another few years in their exclusive care, English might now form all its past tenses by adding /-ed/ to the present and all of its comparatives and superlatives by adding /-er/ and /-est/. Children's logic shows the same tendencies.

Jean Berko Gleason tells of an experiment in which a child was shown pictures of one mouse and two mice and told, "This is a mouse and now there are two mice." The examiner then asked, "What's this? and this?" The first graders in particular answered "one mouse—two mouses" or "two gooses" or the "bell ringed," having only a second before heard the correct form (6).

Word order is important in English. Children learn its common patterns early, but if a pattern becomes reversed, as it does in the passive, children find it hard to learn. If one asks a first grade child to respond to two pictures—one of a cat chasing a dog and the other of a dog chasing a cat—by pointing to the picture called "the cat is chased by the dog," only about half of them respond correctly. They ignore the little words that signal the passive and respond only to the word order.

All of this makes it clear that the child does not learn his language entirely by imitation and as a series of separate items. He early senses patterns, rules for the operation of his language, and applies them. The evolution of syntactic rules and sentence types is remarkably similar in most children.

Wick Miller, formerly of Berkeley and now in Utah, is convinced that each child appears to create anew the phonology and syntax of his language. He says, "The evidence supports the notion that the child develops a set of rules, tests the rules with the sentences he hears, and changes, modifies, aban-

sons, and elaborates his rules in the light of what he hears" (9).

Kornei Chukovsky, a writer and student of children's language in the Soviet Union, reported on children's grammatical skill:

A child having no notion of grammatical rules uses quite correctly all noun cases, verb tenses, and moods, even when he uses unfamiliar words. This perceptive use of words is a most amazing phenomenon of early childhood.

children's locutions are often more "correct" than grammar and "improve" upon it.

Not in vain did Leo Tolstoy, addressing himself to adults, write, ". . . (The Child) realizes the laws of word formation better than you because no one so often thinks up new words as children" (2).

Mrs. Gleason furnishes examples of this latter point from the talk of her own children. A child of two and a half was feeling put upon when someone asked her, "Who loves you?" and she answered, "Nobody!" Later, when she felt better about it she was asked again, "Who loves you?" and she answered, "Yesbody," a creation by analogy which was clearly her own. Another child of three asked, "Mommy, what do giraffes eat?" Following her mother's answer, "Well, they eat leaves, mostly," the child thought a bit and asked, "And what do they eat lessly?"

Every teacher and many parents can add to the list of children's language inventions. These inventions make it very clear that children's language learning is not all imitation. Imitation functions of necessity in the learning of vocabulary items but the child very early creates sentences of his own that are not copies of adult sentences. Whatever it is that the child does, it is extremely complex—a remarkable type of theory construction; and he does it in an astonishingly short time.

Chukovsky says,

In truth, the young child is the hardest mental toiler on our planet. Fortunately, he does not even suspect

this. . . . Among the early acquisitions of the child's mind, the one having the highest value is his treasure of words and grammar. He himself hardly notices the gigantic effort he is exerting while he accomplishes this learning so systematically, expeditiously and expeditiously. . . . This most inquisitive of all creatures, the child "from two to five," values knowledge above all else (2).

What the child's language reveals

To return to the statement with which this paper began, every child brings to school a language. That language tells his teacher three things. The quality of the child's language mirrors the language of his home and the educational and cultural level of his parents. The vocabulary a child has amassed tells of his experience; if there are many nouns, he has had wide firsthand and vicarious experience and opportunity to talk about it; the presence of many verbs indicates that he has engaged in many activities, again either actually or vicariously. The child's language behavior tells of his self-image: self-respecting, confident, and outgoing, or timid, repressed, and fearful. The one thing the child's language cannot tell the teacher is how bright the child is. The child's language is a product of his life experience. He learned what he had opportunity to learn—what was there for him. If his parents speak English well, use a wide vocabulary, and talk with the child about his interests, he also speaks English well. If the language of his home is Pennsylvania Dutch, Spanish American, Appalachian, Southern Negro, Gullah, or just of the "Me and him ain't got none" variety, that is what the child has learned and all that he could learn, however bright he might be. If this language is a kind that will stand in his way in the economic and social world, the school is obligated to do everything in its power to help him add to his repertoire informal standard English. Since the child's school books as well as most that he will read out-

side of school are written in this language, his success in learning to read is closely related to the school's success in helping him with language.

This learning calls for a great deal of opportunity to hear and gradually to use the target English. Yet in all too many schools, teachers start immediately at the beginning of the year to work on reading without learning what each child can do with language; and many teachers, because of the pressure to teach reading, make little use of oral language. Herbert Muller, in reporting the Dartmouth Conference at which British and American scholars and teachers discussed the language and reading programs in their respective countries, says, in speaking of some of the strange methods:

And the neglect of talking by the schools has become stranger in the modern world, where people are listening to more talk than ever before in history, on radio and television, and many are doing more talking too in the endless committees and conferences alike in business, government, and the professional world. In the democracies which make so much of free speech, the torrent of platitudinous, illogical, often irresponsible talk, and its acceptance by lazy, uncritical listeners, are provoking books of alarm (10).

This alarm is equally great as one sees what people who can read will read uncritically, if they read at all.

Language and reading

It is language that the child must learn to read—and the language may or may not match the child's own language. Educational principles, to which everyone gives lip service but which are as often honored in the breach as in the observance in the teaching of reading, are the principles of working from the known to the unknown and of building on previously laid foundations. And what has one to work with? The child has learned a language and in the doing of it has proved himself for a short time almost a language-learning genius. He has

done something that no older person ever does with the same efficiency. And he has done it all without carefully sequenced lessons—in fact with no lessons at all. The experience was not programed, sequentially. The child did his own programing. While children all follow, as Lenneberg has said, the same basic timetable, they do it idiosyncratically. Some start earlier and learn fast; others start later and learn more slowly.

What are the child's assets for learning to read? Every child who has learned to talk has learned to concentrate on what he heard. He has learned to give attention to patterns, schemes of operation, and apply them in his own way. He has learned the basic phonology of a language and also its basic syntax. In doing all this, he has learned to give attention to sound and schemes of operation. He is deeply interested in language and recognizes its worth in his daily living. Certainly all of this activity is of value in learning to read.

Durkin, in her studies of children who read early, found that the interest that led many of these children into reading was interest in writing. This conclusion means, of course, that these children started with their own language, not the arbitrarily prepared language of someone who knew nothing about the individual's interests and concerns (11). Because they knew what they were writing, awareness of symbol-sound correspondence came naturally, as well as awareness of sequence of letters. And certainly there were no problems of comprehension because the child was helped to write what he wanted to write.

A language approach to reading

For children of all levels of language attainment, no approach to reading seems to make as much sense at the very beginning as that of turning the child's own spoken language into

graphic form. Children learn what reading and writing are and that conceiving ideas, putting them into words, and putting those into sequences of graphic symbols must precede reading. William S. Gray said more than once after his return from studying reading and writing in the UNESCO countries that he found reading and writing being taught almost everywhere as two sides of the same coin. Yet even today, the typical basal reading pattern in the United States divorces reading from writing almost completely.

A major value in a language approach to reading ("*an approach*" and not "*the approach*" since no two teachers do it exactly alike) is that the language that is written can be the children's own language. One must be both considerate enough and daring enough to write what a child actually says, not the revised version of what he says. If the child says, "Him a good dog. He go be house," or "He busy. He bes always busy," that is what is written and read back to the child. Later, perhaps considerably later for some children, one can help him say what he wants to say the way it is said in books, but not at the very beginning when the purpose is for the child to identify his own talk in graphic symbol form.

Schemes for teaching reading that give attention to both reading and writing are winning favor in many schools. But the writing cannot, *must not*, be just copying the material in readers and workbooks. It must stem from the child himself and what he considers worth the labor of writing. Spelling is learned incidentally as a child has need for it. In fact, the language skills are taught in their interrelationships, not as separate, unrelated or little-related entities. Through such experience, the child learns much of what he needs to know about symbol-sound relationships.

Reading as decoding

The writer cannot let this opportunity pass without remarking on Jeanne Chall's challenging, provocative, and very valuable book (1). It is interesting that everyone approaches it with his own particular bias, the writer not excluded. In it Chall calls attention to her conviction that schemes for teaching beginning reading that give attention to code-breaking seem to achieve better results than those schemes which give major attention to meaning. Is there any other field where personal biases and vested interest are given as much professional and commercial protection as the field of reading? Already it appears true that advocates of basal reading schemes which emphasize meaning are on the defensive; everyone who has a separate phonics scheme, whether a fly-by-night one or one based on independent research, is putting out new advertising material and strengthening the pressure on schools; and everyone who espouses a code-based teaching scheme other than phonics is begging to be heard.

No one wants, hopefully, the kind of code-breaking which Horace Mann condemned in 1837 in his report to the Massachusetts Board of Education. He said, "It is as absurd to teach children sounds without meaning as to teach them to chew without food. . . . Children come to school knowing words by ear, tongue, and mind. Now they must learn to know them by eye."

The writer has recently heard a number of people in reading speak with disapproval or even scorn of Chall's emphasis on code-breaking. Yet isn't that what everyone has done when he learned to read—whether he did it on his own initiative and out of awareness while he listened with attentive delight to his mother's reading of familiar stories, or learned it through television and helping his mother at the supermarket, or caught onto it

through his interest in writing or dictating for someone else to write, or worked it out with his ABC blocks or on daddy's old typewriter, or learned it at school? Somehow, somewhere he learned it or he would not now be reading.

Almost everyone who has responded emotionally with either jubilation (mostly outside IRA) or dismay (mostly within IRA) seems to overlook some very important facts. Chall has not advocated any *method* of helping children break the code of English reading. Neither has she repudiated or minimized the importance of meaning and of reading as thinking. She has, in the writer's judgment, opened the doors wide for new approaches and new combinations of old approaches which can be adjusted to the needs of individual children. Will it ever be possible in the United States to look at reading without coming in the last analysis to the _____ company's method, the _____ programed method, to the _____ linguistic method, the _____ phonics method, or any other established method and look instead at what each child has achieved, how he seems to learn best, what he now needs and then to teach reading through adapting procedures to fit the needs of each child?

The revolution in England

In an article in *The New Republic* Joseph Featherstone describes schools seen in England during an intensive period of observation:

How they learn reading offers a clear example of the kind of individual learning and teaching going on in these classrooms, even in quite large ones. Reading is not particularly emphasized, and my purpose in singling it out is purely illustrative, though the contrast between English classes and most American ones, where reading is a formidable matter, is vivid and depressing.

At first it is hard to say just how they do learn reading, since there are no separate subjects. A part of the answer only becomes clear, and it surprises

American visitors used to thinking of the teacher as the generating force of education: children learn from each other. They hang around the library corners long before they can read, handling the books, looking at pictures, trying to find words they do know, listening and watching as the teacher hears other children's reading. . . .

Teachers use a range of reading schemes, sight reading, phonics, and so forth, whatever seems to work with a child. Increasingly in the good infant schools, there are no textbooks and no class readers. There are just books in profusion. . . .

However a child picks up reading, it will involve learning to write at the same time, and some write before they can read; there is an attempt to break down the mental barrier between the spoken, the written and the printed word (5).

Some British teachers who came to this country to teach were appalled by the teachers' guides that accompany reading systems in the United States and that tell the teacher what to say and do for practically every sentence in the children's books. They consider so much guidance (or prescription) an affront, an insult to their intelligence. Perhaps one needs to find ways to prepare teachers to understand language and how it is learned, to understand the skills of literacy, and to understand how to study children and their needs and then to free teachers to be the professional experts they can and would like to be.

Featherstone calls learning to read a formidable experience in this country. It need not be so. Reading is not the same as talking. Learning to read cannot exactly parallel learning to talk. Everyone recognizes that the language of writing is not identical with the language of speech. But the children are the same children who learned a language. Can ways be found that put less emphasis on teaching and more on learning? Can more of the challenge, more of the excitement and thrill of personal discovery and personal success be put into the teaching of reading as well as into the learning of it? In

the opinion of this writer it can be done.

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INSTRUCTION AND INSTRUCTIONAL MATERIALS

METHODOLOGY

Interrelating Listening and Reading

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INTEREST in the relative similarities and interrelationships between listening and reading has been high for many years. With a greater emphasis upon listening in the language arts curriculum of the schools, even more research studies seem to be concerned about the interrelationship.

Correlation between listening and reading

There are certain common elements that are found between listening and reading. Among these common elements are vocabulary, sentence patterns, organization of ideas, and adjustment to the function of language (1). Positive relationships then between listening and reading would be expected because of the common elements that are found in listening as well as in reading.

Listening comprehension is positively related to reading comprehension. In teaching a child to read in the early primary years, it is much easier to teach the child to recognize a word in print if he already comprehends this word in his listening vocabulary (8). There have been many studies that have shown a high correlation between listening and reading comprehension. Goldstein (6) reported a correlation of .78 between listening comprehension and reading comprehension. Other studies that show this positive correlation between

reading comprehension and listening comprehension are those done by Blewett (2), Brown (3), and Pratt (15), to mention a few specific studies. Listening and reading have high positive correlations which do indicate that an interrelationship does exist between these two receptive language arts skills.

Comparison between reading and listening

In comparing listening and reading Caffrey (4) mentions a term involved in the end product of good listening called "auding." He compares the two further by writing, "With the eyes, we see, we look at, we read. With the ears, we hear, we listen to, and *aud.*" The learning stage of reading and listening can be compared; thus, a child must be able to see and look at the word before one asks him to read or comprehend it. In listening, a child must be able to hear and listen to the word before he can aud or comprehend it. For example, a child may be able to hear the word "fantastic" if he has normal hearing sensitivity; also, he can listen to the word "fantastic" if he attends to the sound of the word; but he may not aud or comprehend the word because he does not have the necessary experiential background to comprehend that this word might mean imaginary, wonderful, or some other meaning. Another

case could be the child from Mexico, who in the United States has normal hearing and can listen to spoken English but does not comprehend the English language at all because he only speaks and understands the Mexican language. In using auding and comparing this to reading, the two language arts areas become even more easily compared; and the only adjustment necessary would be the difference between visual and auditory language. Once the parallel between auding and reading is understood, the teacher can prepare units and methods of teaching auding along the concepts and skills used in teaching reading. One should realize that listening (auding) is an art as complex as reading and as improvable through instruction and guided practices as reading (7).

Reading and listening involve about the same mental processes; that is, once the stimuli, visual or auditory, have been received by the individual, images or ideas are perceived. The thought or the experience, according to Wiksell (16), becomes the reality; and the words, visual or auditory, by which the new learning was acquired become less important. There are, however, several differences, too. The rate of presentation is different. Reading may be adapted to the individual's predetermined rate of assimilation, but in listening the speaker determines the rate. There usually is not an opportunity for the listener to rehear certain sections of the speech, whereas a reader may reread at any time. For example, here is a test item to listen to and determine the proper answer:

Almost all of the products that one uses today have at some time traveled on conveyors in large factories, industry, or mining operations. There are several different types of conveyors, such as belt-type, metal-slat, monorails, and others. No matter what type, all conveyors 1)

provide new products for the consumer, 2) create new jobs faster than they eliminate old jobs, 3) make shipping more efficient, 4) help to keep things moving in one's daily life.

The listener may want to hear all or part of the test item again; however as a listener, usually one cannot rehear it. As a reader, one could reread the item. The person who was listening and comprehending would have selected number three as the answer.

A reader may go to the dictionary for unfamiliar words, but the listener has few moments for this type of an activity during listening. In reading, also, there is more time for reflection than is usually found in a listening situation. Even though the mental processes are similar, many differences do exist between reading and listening.

Effect of instruction in listening on reading

Inasmuch as listening and reading are both receptive skills and are inter-related, it follows that improvement in one may result in the improvement of the other. The studies of Kely (10), Marsden (13), Lewis (12), and Hollingsworth (9) had as their objective the goal of determining what effect practice in listening would have upon reading. In these particular studies, the children were given listening exercises; then reading tests were administered to determine the effect, if any, listening improvement had upon reading achievement. The former studies mentioned did seem to have a favorable, positive effect upon the improvement of reading when training in listening was given elementary children for certain specific purposes. These specific purposes were to 1) get the main idea, 2) get the supporting details, and 3) draw conclusions. These listening exercises in these three areas seem to have a positive effect on reading for these same three purposes for

the pupils involved in the study. The latter study did not find any significant differences. Although the results are not entirely consistent, many studies show that instruction in listening skills leads to improved reading.

Reading potential predicted by listening test

A listening test has been used as a predictor for reading readiness. Launderville's (11) study was to investigate the use of listening ability as a means of predicting success in first grade reading. It was found that a listening test was as effective in predicting success in reading as was a standardized readiness test. Even with children, before formal reading instruction is given, the interrelationship of listening and reading are indicated inasmuch that listening tests can predict reading success. Another study involved in determining the predictive reading potential of elementary school children through a listening test in grades two, three, and four was done by Owen (14). The education implication discovered in this study was that a child's approximate level of reading expectancy can be more accurately obtained by using a combination of tests of *intelligence* and *listening* comprehension than by using intelligence or listening tests as single predictors. The interrelationship of listening and reading reflects itself in this study, too. These two studies just cited support the value of listening tests in predicting reading potential.

Interrelating listening and reading in the classroom

Although the investigations involving listening and reading seem to be plentiful, the application of these findings into classroom experiences seem to be lacking. In teaching listening or reading one must keep several items in mind. First, the teacher must establish a goal for the learner or at least

teach the learner how to establish his own goals in instruction. In setting a goal, the teacher might establish one such as this one. After this listening exercise, the child should get the main idea from the selection.

Second, after the goal is established, practice is necessary to achieve the learning which is necessary in order to reach the goal established. Now the teacher must give the pupils in the classroom an opportunity to listen to the teacher reading a selection. Under the teacher's guidance the pupils would discuss how to get the main idea. The teacher, by the use of taped selections or other means, would give the children several listening exercises in which each child would write out the main idea of the selection. During this practice period the teacher should check to make sure each pupil understands what it is he should be finding.

Third, some type of evaluation or appraisal is finally needed. The teacher would then be able to determine how well the children learned to find the main idea of a selection. This type of exercise in listening would also aid them during a reading lesson to find the main idea of a selection read.

As the classroom teacher interrelates his reading and listening, it is very important that the teacher keeps the preceding three elements of instructional practices in mind. Direct instruction in the skills necessary for reading and listening is more beneficial than indirect techniques; therefore, the teacher must be aware of the skills necessary and make plans to teach them in the classroom rather than hope that the listening skills will be learned without direct instruction.

Reading accompanied by ample discussion in the classroom could be an appropriate way of interrelating reading and listening. After the children read a selection, descriptions and imagery could be discussed. The child's listening vocabulary could be enriched

and his reading vocabulary reinforced through this integration. Care should be taken, however, during these periods to aid the child in improving his listening skills and comprehending the discussion rather than just hearing. This type of an interrelationship with reading and listening could be done prior to reading, during the reading, and following the reading of a selection. If the child has an opportunity to listen and to participate in reading and the discussion, this reinforcement of vocabulary, concepts, and ideas may become an actual part of the child's learning and may become usable to him.

Another opportunity a classroom teacher has of interrelating reading and listening is in the oral reading period. As a child reads from reference books or other materials to share his research with his class, listening opportunities become plentiful. At this time, a teacher may instruct his pupils in the proper listening habits needed. This type of instruction should normally precede the sharing period. The teacher could develop listening habits, such as, proper attitude, adaptability to the physical situation, thinking ahead of the speaker, drawing conclusions, reviewing periodically during the listening situation, and others. This type of sharing would give the class pupils ample opportunity to practice proper listening skills and at the same time receive valuable information in science, social studies, or another area of the curriculum. Oral reports that are given by the pupils throughout the school year could be just another opportunity for the interrelating of reading and listening.

Conclusions

Reading and listening correlate highly with one another in a positive relationship. It has been reported that there are common elements that are similar in both reading and listening

and that an interrelationship does exist between these two receptive skills.

Many studies have compared the common aspects in reading and in listening. Reading and listening involve some of the same mental processes, and the individual using these processes needs training to be able to comprehend and learn from the experiences which he receives both visually and auditorially. In comparing listening and reading, differences seem to exist in the problems which are involved in the media used in the presentation of listening as compared to reading, such as the printed book compared to the speaker.

Improvement in listening has a positive effect upon reading. Although the results are not entirely consistent, many studies indicate that instruction in listening skills leads to improved reading. Not only does the improvement of listening affect reading but listening tests can also be used as a predictor for reading success as well as reading potential.

In listening or reading instruction the steps are quite similar: first, a goal is necessary; second, practice is needed; and third, an evaluation or appraisal should be made of the progress. Direct instruction in listening skills is necessary for maximum improvement. Reading accompanied with discussion will help in interrelating reading and listening in the classroom. During the oral reading period or oral report sharing time another opportunity of interrelating reading and listening presents itself to the class if an alert teacher is willing to use this time in a beneficial way.

In conclusion, Duker (5) stated: "The effective planning of reading instruction is made impossible when the interrelationships between reading and listening are ignored." All who are concerned with the teaching of reading must take into account the importance of the listening role in reading instruc-

tion and understand how reading and listening are interrelated.

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Teaching Listening in the Elementary School

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IN ASSESSING what one is doing and why, it is necessary to go back historically and review the place listening has played in the curriculum.

Before the invention of the printing press made books available for the transmission of knowledge, listening was the vital link to knowledge. The old adage "Sit at the feet of the learned and listen" was meaningful to all students in those days. One listened attentively and analytically or one did not learn. Then, along came books and although they were scarce in the beginning, they were available. Naturally, the schools began to concentrate on the teaching of reading so that the children could then read to further increase their knowledge. As books increased, stress on listening, like the old soldier, "just faded away."

Then came the invention of the radio. Its avid reception by the public resulted in the American people being bombarded through the ear by news, advertising, etc. Educators became cognizant again of the importance of listening not only to the radio but in the classroom, and research was directed accordingly. Let one review some of the leading Landmarks in this area. Paul Rankin's pioneer study in listening in 1926 showed that high school students in Detroit spent 30 percent of the time devoted to lan-

guage each day in speaking, 16 percent in reading, 9 percent in writing, and 45 percent in listening (2). Interest in listening increased. In 1945, the keynote speech of the National Council of Teachers of English highlighted listening. A nationwide committee was set to promote listening as an integral part of the language arts program. In 1949, Miriam Wilt found in her timed tabulation of school children in the elementary classrooms that 57.5 percent of the classroom activities was spent in listening (3). This time was twice the amount teachers had estimated children spent in listening.

Interest in the area of listening snowballed. The invention of television and its wide acceptance by the American public paralleled this time. Studies showed the large percentage of time spent by both adults and children in watching television molded the attitudes of the public on news, advertising, and events not only through the ear but by the emotive appeal of seeing the speaker.

In 1952, *The English Language Arts* published a report based on a five-year study by the Commission on the English Curriculum of the National Council of Teachers of English. This report stated clearly that good listening habits must not be left to chance, and that there is a need for carefully graded training in listening just as there is a similar need in reading.

In 1962, when Sam Duker published his extensive bibliography of professional articles and studies in listening, he listed 725 studies done since 1917. This amount shows definite progress. However, when one compares this number with the over 5,000 studies done in reading, it is quite obvious that listening is still the "neglected step-child in the area of communication." This viewpoint becomes more apparent when one considers that most of the studies which have been done in listen-

ing were done to show the need of improvement of listening skills as necessary to improve reading skills. Duker found that approximately 200 of the studies listed in the bibliography mentioned previously were devoted to showing the interrelationship between reading and listening. Although none would gainsay that interest in listening is at its highest peak in the history of current education, one would also be forced to admit that most of the stress in developing good listening skills is merely to implement improvement in other areas of the language arts?

It is important to assess the progress resulting from this increased interest. Many excellent contributions have been made to aid elementary teachers in teaching listening skills. Ruth Strickland's "Nine Successive Levels of Listening," Althea Beery's "Nature of the Developmental Stages Through Which Listening of Maturing Children Pass," David and Elizabeth Russell's "Listening Aids Through The Grades," and Don Brown's "Auding as the Primary Language Ability" are valuable contributions. Every elementary school now schedules "language arts" as a part of the curriculum. The textbooks designed for the elementary children in these classes include many excellent lessons designed to aid in the development and improvement of listening skills. Curriculum bulletins are giving increased attention to listening. At the college level, most colleges now offer a course in teaching language arts to future teachers. However, in the splendid textbooks designed to accompany these courses, one finds only one chapter devoted to listening, per se. There are indications of definite progress in the field of teaching listening skills. However, how much of this matter has filtered through into the actual classroom procedures of the elementary teachers? How many teachers do provide systematic instruction for

their students in the development of listening skills?

How much progress has been made since Harold Anderson stated in 1954 in "Needed Research in Listening" that, "... except in isolated instances, virtually the only instruction in listening that children receive in the schools is the quite useful admonition to pay attention and listen carefully"? Could one answer this question by quoting the findings in 1964, a decade later, of one of the 27 research projects funded by the United States Office of Education in studying first grade reading and language arts methodologies done in San Diego County? Fifty teachers were selected because of their teaching competency in utilizing both the traditional language arts program and the experience approach to language arts development. The findings showed that both groups included little direct instruction in listening skill development. Yet, these teachers are judged to be typical of the best elementary teachers across the nation (3).

Could this result be explained, in part, by the facts: that teachers have not been supplied with textbooks which include sequential listening skill instructional programs which move systematically from developmental level to developmental or grade level to grade level; that the lessons included in the current language arts books have been developed as a series of isolated lessons usually for use for only a portion of the year; that teachers teach these lessons at this time but fail to develop within the children an awareness that these skills must be transferred and utilized in all similar situations throughout the year as the authors intended? Or would one need to go further for an explanation of this gap and accept the accusations made that teacher training institutions have traditionally included little, if any, emphasis upon teaching listening skills? If one

does accept the two preceding reasons, one should also accept the fact that neither is particularly surprising in light of how recently language arts has been incorporated in the educational curricula. Many of the teachers, on both college and the elementary levels, were already in the field teaching when the concept of teaching language arts was introduced. Therefore, they have had no specific training in the area and have been dependent upon the texts and professional literature for their understandings. It is axiomatic in teaching that teachers tend to teach in the way in which they were taught and to emphasize what was stressed to them. The author has found without exception that, when a graduate class of teachers is asked to define language arts, some of the teachers will still list the tool subjects involved—i.e., grammar, penmanship, and spelling—thus revealing that they still have no clear concept of the language arts as dealing with communication using word symbols. If one wishes to communicate to others one can either speak and others can listen or one can write and others can read what has been written. Just this simply are the four areas of the language arts pinpointed.

It is the responsibility of teacher to show students that the goal for mastering any of the tool subjects involved in language arts is for the purpose of improving communication with others, not just to make a good grade in the tool subject. Far too many students in the elementary school still study spelling solely to make "100" in spelling, study grammar solely to make a good grade in language arts, and study reading only to make a good grade in reading. Too few have been taught that the goal for improvement in any of these subjects is to improve their communication at all times. Too few teachers point out specifically to their students how improvement in one area will, in turn, bring about improvement

in another area. Far too many secondary English teachers are themselves unaware that the skills which they teach their students, in paragraph organization, to clarify the relationship of ideas within the paragraph are exactly the same skills which are taught in the field of reading to receive the communication of the writer. If one has not as yet been able to clarify to the teachers the interrelationship existing within the areas of the language arts itself, it is certainly not surprising that one has lagged behind in clarifying the areas of listening and its vital importance in the areas of language arts.

Since children can usually both hear and speak when they enter school, it is perfectly natural that teachers have assumed that, with proper admonitions to "pay attention, and listen carefully," the pupils will be able to listen effectively. Perhaps there is a need to clarify what is involved in the listening process. The act of listening can be broken down into levels. The first level could be described as the purely physiological reception of sound through the ear by the auditory nervous system. This skill is highly developed in a newborn baby, who has had months of listening to the heart-beat and noises in the digestive system of its mother as well as to the louder sounds from outside its mother's body. The organs and nerves involved in hearing are far in advance at birth in their development as contrasted with the organs and nerves which will be utilized later for speaking or reading or writing. This growth is as it should be since the ability to understand the spoken language is the first step in the development of meaningful communication and acts as the foundation for all the other skills. However, this first level, *hearing*, involves no connection between reception of the sound and thought processes or meaning. The second level of listening

could be established as the process of receiving the oral language of others and distinguishing likenesses and differences among the sounds received. On this level listening is limited to the reception of language sounds, but it still implies no relationship to thinking and interpretation. This level involves only auditory discrimination of the listener. Yet many teachers, when asked what they are doing to develop listening skills, will include as listening exercises having the children, either in class or by using tape recorded exercises, discriminate word beginnings or word endings as alike or different. Still, in reality, these exercises are purely auditory discriminations. At this level children hear clearly and can then repeat what has been spoken to them; but, as any mother or teacher can readily testify, they attach no meaning whatsoever to what has been heard.

To establish the third level of listening, the term "auding," will be used—a term and concept introduced in 1954 by Don Brown [see "Auding As a Primary Language Ability"] and defined as the process of hearing, recognizing, and interpreting spoken symbols. In describing the skill of auding he says ". . . Auding is to the ears as reading is to the eyes." If reading is a gross process of looking at, recognizing, and interpreting written symbols, then auding may be defined as the process of listening to and interpreting spoken symbols. Perhaps a comparison of the levels of listening to the levels of reading will make the concept clearer. David Russell made this comparison ably in the following formula, "Seeing is to hearing, as observing is to listening, as reading is to auding." Auding, therefore, refers only to listening which involves thought processes: listening meaningfully for comprehension and reacting critically to what is heard. It is on this level of listening that one finds too little being

done just as we find to be true on the same level of reading. In the same fashion that a reader can read and comprehend what the author has written without any reaction or evaluation, the listener can hear and register what the speaker has said without any meaningful interpretation whatsoever. It is on this level of auditing that the skills necessary for critical listening must be developed. Never before in the history of this country has the need for the ability to both read and to listen critically been so necessary to society. The public today is bombarded both through the eye and through the ears by authors and speakers intent upon molding their opinions on everything from news to what coffee to drink or to what laxative to take. Children must be trained to evaluate an author's or a speaker's competency to write or speak in the area. They must be trained to be objective in their listening, to recognize the bias of the speaker, and to recognize the propaganda through name calling, glittering generalities, card stacking, and others. In the explosion of knowledge existing today children must be trained to sharpen their listening skills and learn to screen out the important new knowledge. Many teachers seem unaware that critical listening demands greater skill than does critical reading. Words on "the wing" are more difficult to follow. The speaker may continue while the listener is mulling over a strange word or a thought triggered by the speaker's statement.

Although this paper is not meant to include the "how to's" of teaching listening skills in the elementary grades, all teachers need to start by first improving their own abilities as listeners. Few teachers have received actual instruction in how to listen critically; however, one definitely needs to acquire the skill himself before attempting to transfer it to his students. Also, one must always keep in mind

that teachers set the pattern of listening which will be copied by students. Certainly teachers want to teach the excellent listening skills included in the textbooks and taped materials, but perhaps with greater depth as to their actual meaning. Teachers must guide the learning of these skills by students in such a way that a transfer will be made to other similar situations. Certainly teachers need to make the emotional climate of classrooms such that they will be conducive to good listening. By all means, teachers must be certain that the topics utilized for the development of listening skills will evoke an interest within the listener to insure that they will listen. Never must teachers forget that they must ask the type of questions which demand more than understanding and comprehension but require evaluation and critical listening. Finally, let each teacher "do something" constructive about the improvement of listening within classrooms. Much progress has been made to date. Greater progress in the future can be obtained.

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What Do We Look At When We Read?

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IN THE THEORY OF COMMUNICATION,
reading is construed as receiving and

interpreting a message. There must be a sender (encoder) and the message must be received and interpreted (decoded). Accordingly, reading is decoding.

Defining terms

To clarify terminology, consider definitions given in the *Comprehensive Dictionary of Psychological and Psycho-Analytical Terms* (8).

Decoding is: "The process whereby a receiver transforms signals into messages at the destination. . . . The receiver is the entire sensory apparatus . . ."—sight, smell, hearing, touch. Note that reading would not necessarily be a visual process. Blind people read. In a spoken message, the accent or emphasis will affect the receiver's interpretation. Compare this idea with the current colloquialism, "Do you read me?" However, the topic for this discussion is limited to what one "looks at."

The dictionary continues: "The messages are the meanings ELABORATED by the organism." Everyone may not receive the same message; the meanings that each individual elaborates from the visual stimuli may vary remarkably. If a reader looks at cholesterol and calls it chloroform, the stultifying effect is mental, not physical. It would be necessary to distinguish between "what one looks at" and "what one sees" in the reading act.

In a very broad sense, one can read facial expressions, billboards, symbolic colors, pictures on canned goods in the grocery, and the shape of highway signs. Meteorologists have developed systems for reading the physical elements; doctors use instruments to read blood pressure; parents read letter symbols on children's report cards; women use mirrors and bathroom scales to read acceptability of appearance; and men look under hoods and at price tags to read the desirability of new cars. Man's sensory apparatus

transforms signals of various kinds into various messages as he decodes; however, reading is usually construed as decoding the printed page.

$$R = P \div ACT$$

So the answer to the question "What do we look at when we read?" becomes a complex one that is governed by such factors as age, attitude, and gender of the reader; availability of reading materials; purpose; and the power to decode. In this day of acronyms, perhaps one could devise the formula $R = P \div ACT$. In this formula for reading, P equals print divided by ACT. The ACT would be dependent upon A for age and attitude; C for choice, including availability, interest, and purpose; and T for training or techniques, including skills and study habits. What one looks at when one reads is splintered by these factors.

If the definition of reading were refined to state, "Reading is interpreting a printed message," the dimensions of the meaning are reduced to something approximating the learner's task. At the same time the teacher's purpose is set to provide activities that will effect in students the ability to interpret printed messages.

Reading in the primary grades

Beginning in the kindergarten, children look at picture books and tell what message the artist brings. The dominant figures and the lesser details are perceived by children variously. The whole area of figure-ground perception has been developed, along with other visual-motor skills, in the Frostig materials (10). Children search for experiential meaning with each successive page of Maurice Sendak's *Where The Wild Things Are* or Bishop's *The Five Chinese Brothers*. Children's art facilitates language development as teachers invite varied interpretations. The Head Start programs have convinced educators that background experience and language

facility are prerequisite to handling the printed messages.

The Story Boards by Olivia Hill (Houghton Mifflin) is a new device for kindergarten and first grade pupils that fosters imagination and interpretive skills. The images are geometric figures of people without facial features, without precise gender, and without nationality or color—but which stimulate the imagination. The messages are truly “elaborated by the organism.” Children read graphic representations.

When the topic, “What do we look at when we read?” was offered, the writer was teaching a graduate class in remedial reading. Pondering together the ramifications of ideas that the subject involves, the writer asked the teachers if they would, in turn, ask their students the same question.

The answers came from youngsters in northern Indiana and Illinois. The pupils were in regular or special classrooms. The sample included approximately 300 children. The first response among remedial youngsters was almost always “words.” The responses from the primary grades were summarized as follows: words, pictures, letters, syllables, titles, vowels and consonants, periods, hard words, sentences, and capitals. For the younger student reading seems to be a mechanical process, a way of coping with the printer, or a major concern with the “parts.”

Reading in the middle grades

A very skillful remedial teacher of the middle grades urged her small groups to go beyond the answer “words.” The responses then changed to “I look at pictures,” “I look at chapters to see how many,” “I glance over the page to see what it’s about.” The teacher reported that the groups more or less concluded by themselves that no special answer is correct—“It depends on what you’re looking for.”

Therefore, it would appear that the age level of the reader is a determinant in what we look at when we read. The attitude toward reading is another factor. What *may* be the attitude of a remedial youngster who says, “I look to see how many chapters are in a book”?

Responses from sixth grade pupils tend to reflect more internalization of the written message. One pupil wrote

I look at the words. I see pictures in my mind and education. Letters and punctuation. Pages. If it's a dictionary, I see meanings or definitions (sic). I see page numbers. If it's arithmetic, I see problems, numbers, fraction. It mostly depends on what kind of book you are reading.

Another pupil wrote

Whenever I read, I am usually the star of the story. And then sometimes I am about the cheapest person in the story. When I really enjoy the book, I wish I was inside with the subjects. But when I don't like the book, it's just a big blah!

Still others wrote

I see pretty houses or apartments with a busy street including cars and on the sidewalk many people walking around. When I read about long ago I picture land being very empty with little grass and very few trees. I don't picture any streets, sidewalks or even paths and I see very few people walking around. I picture people on horses or donkeys carrying food or any supplies. I see them wearing very long dresses with a rope for a belt and sandals on their feet. When I read about the middle of a house, I picture it somewhat like my own.

... like in the store of finding Christmas for instant there were a boy and girl name Jonathan and Sarah and Jamie they want to go back to Massachusetts for Christmas. But his mother and father would not go. I see they could if they want to because is nothing without enjoyr ant.

I get meanings when I read. When I read I get different feelings. When I read I have different affects. I learn knew words. I see different thing. When I read it makes me think.

When I read I see a picture in my mind about what I'm reading. When I read I read careful, and don't read to fast, try to look at 3 words at a time.

Most of all I see learning in the future and planning. If I read about someone who has dropped out of school

and can't get a job, I see in my mind that that's something that I will not do when I grow up or be a teenager.

Reading in the junior high school

Seventh and eighth grade students reflected more discrimination in selection in their answers to "What do you look at when you read?" Reading for the older student becomes a matter of choice of content. The emphasis on the mechanics of word identification has decreased. Some typical answers were

Look for the information you need. If you are looking for a certain chapter, look in the index. Open the book to the middle; see if it is easy or hard. Read the first paragraph to see what the story is about. Size of print. and I do not like a book that has too much conversation. I like biographies.

Other junior high students said

I do not like books. I read because I have to. None have any effect on me. I see if the book has any appeal at all and try to make the best of it.

I do not like short stories in readers. They are not interesting.

I always look two or three words ahead. If I am reading, 'The dog barked,' then when I am reading 'The' I am already looking ahead to 'dog barked.'

I look for true stories.

I look to see who the characters are. I skim through it and read a paragraph or two on every other page. I look at the table of contents. If it's a softcover book, I look at the back and see what it's about."

Teacher as the catalyst

To review the definition, remember "Reading is receiving and interpreting a printed message." In the foregoing excerpts, all students in the upper grades have related reading to books. There is a psychosocial implication here that extends to the emphasis one puts on books on this culture. It may relate to the quantity and quality of materials available for children to choose from. There was no connection between interpreting the message of magazines, microfilms, graphs, globes, films, filmstrips, and card catalogs—all of which have printed mes-

sages. The multimedia approach to learning has not made its desired impact upon the classroom teacher. The Elementary Secondary Education Act, through Title II, has provided the nation with a new wealth of library materials but will never reach its desired goal unless teachers enmesh themselves in materials for reading. What pupils "look at" may depend upon what the teacher recommends. Materials are available. Reading must become synonymous with excitement and treasure-hunting. The burden of involvement rests with the teacher. To help with that task the writer has duplicated a list of best sellers from the February 1968 issue of the *School Library Journal*. [See following bibliography.] These are the books children choose. Seven children's books published since 1960 have reached the best seller list. Teachers, have you read them? What do *your* students look at when they read?

Reading as a visual task

The number of pupils who referred to size of print as a factor in selection of material causes one to consider the physical process of reading. Jack Worden (25), addressing the Claremont Reading Conference in 1966, pointed out that in a great majority of the students who are slow learners, retarded readers, and school dropouts, the problem of vision appears most frequently. Worden said, "The visual system is responsible for about 80 percent of the information received by the student while attending school." Another point that is significant for primary teachers is as follows: "It has been found that many children are incapable of transferring spatial directions from the vertical plane of the blackboard to the horizontal plane of their desks." If a perceptual problem is present, a child cannot perform adequately. The visual task is a learned process. In this connection, what is

the effect of television viewing on the physical task of reading print at close range?

The Snellen Chart, requiring a child to read at a distance of twenty feet with one eye at a time, was assessed by Worden as "grossly inadequate and totally antiquated." The controversy about farpoint vision in films and other projected learning materials certainly pertains to the ability to see when one reads. The physical capacity then is another factor that must be considered in "What do we look at when we read?" Maybe what looks like sticks and curves to some beginning readers may look like blurred smudges or woolly worms to others. Consider the sixth grade student who wrote, "I see in my mind, letters just floating around just like people in outer space without any gravity and just like the letters are telling me what to say."

Literature reports many studies on typography (12), format, style of writing (14), grammatical structures (22), language with ego appeal for the disadvantaged child (21), perceptual motor control (10), words in color, new alphabets (19), and patterned language. The total reading process is oriented toward the mastery of skills that will enable each individual to be capable of reading and to want to read—the epitome of self-fulfillment. The greatest controversies seem to exist at the initial stages of reading.

Reading as an intellectual task

Let us move from the idea of reading as a physical task and center our attention on the intellectual task. The whole area of critical reading, of semantic understandings, of internalizing the perceived print has unlimited possibilities for even the most mature reader. David Glessman (11) has used the term "searching" to describe the reader's activity in getting basal sentence parts together for meaning. Glessman believes that an important

cause of poor comprehension is habitual failure to search.

Searching means reading with a purpose, a quest. It involves the reader in the active enterprise of listening to the author. Frank Jennings (15) says, "There is a semantic play between the reader and the writer that confuses issues and intentions." Cases of censorship over literary publications point out a concern over interpretation of literature and all the arts. Some high school students cannot read *The Catcher in the Rye* to find the social implications of the novel or the character strength; the isolated words seem to be the object of search for the immature; the meaning is elaborated by the organism in proportion to his power to search.

Boyer (3) reported an interesting study with thirty male and thirty female college students who were asked to read six pleasant, six unpleasant, and six neutral sentences. The students were timed as they read the randomly distributed sentences. The investigator was measuring psychological stress during reading. The neutral sentences took the least amount of time; the pleasant sentences took the next amount of time while the unpleasant sentences interrupted the reading act, taking the greatest amount of time. The amount of mental application that one brings to the reading act is of great importance.

The answer then to the question "What do we look at when we read?" can be briefly summarized in the formula $R = P \div ACT$, which means that age (attitude and gender), choice (including availability of materials, interest, and purpose), and training in techniques or reading skills (including critical reading as an intellectual task) determine what one looks at when one reads.

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Use of Context Clues

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*Mary had a little lamb,
Its fleece was white as_____.*

FEW four-year-old children would be unable to complete the sentence with *snow*. Likewise, "Becky and her mother wanted to go shopping. They climbed into the _____ to go to the store." Few children, even before entering school, would have difficulty with supplying any one of several words which would make sense: *car, automobile, bus, streetcar*. Children use context in their oral language, easily and naturally. Children, and adults too, use context clues to aid them in their reading.

It is easy to find testimonials to the importance of context clues in reading. Open almost any textbook on the subject and there are such statements as

It would be difficult to overestimate

the value of the context in children's word perception in reading (7:16). Contextual clues provide one of the most important aids to word identification and interpretation (6: 84). Context clues are perhaps the most important single aid to word perception (11:25).

The person who has not developed skill in the use of verbal context has not become a mature reader (22: 23).

It is important to know, however, that many children who are thought to be in difficulty in reading because of limited skill in analytical techniques or because they have insufficient knowledge of phonetic, structural, or visual elements are usually in difficulty because they are not using context clues well (4:321).

Obviously, statements praising the worth of context clues are easily found. Much has been written about how the use of context helps the reader develop the meaning of words. As important as it may be this topic is not the concern of this paper. Rather, the purpose is to attack the more elusive problem and explore what aid the use of context clues gives the reader in respect to word recognition.

There are at least four uses of context clues in word recognition. These can be summarized as follows:

1. Context clues can help children remember words they have identified earlier, but forgotten. Most teachers can cite examples of a child's having difficulty with a partially known word and then recognizing the word in a new setting after being told that the word is a familiar one and that it makes sense. For example, if a child reads "Bill was a cow" for "Bill saw a cow," asking him if what he reads makes sense will often enable him to correct himself.

2. Context clues may be combined with other word-analysis clues (phonic and structural analysis) to check on

the accuracy of words tentatively identified by the use of other clues. Bond and Wagner state that context clues serve as "checks on the accuracy of all the other techniques that are used" (5: 172).

3. Context clues help in the rapid recognition of words for all readers by helping one anticipate what a word might be. The ability to draw an accurate inference to what a word is can serve as a time-saver. It is a faster technique than other word recognition aids such as phonics. It enables the reader to use only those phonic and other analytical techniques which are necessary to distinguish one word from another. For example, instead of having to sound out a word, the efficient reader uses only enough phonic clues to recognize the word quickly when combined with the meaning clues.

4. Context clues are required for the correct identification of some words. Gray states, "The pronunciation of many words (*permit*, for example) depends upon their meaning in a given context" (11:148). Other words which require the use of context clues are *lead* in a pencil or *lead* the way, *wind* a ball of string or the *wind* blew, *tear* a piece of paper or a *tear* flowed down her cheek, and *piggy bank* or a *bank* to fish from.

How do context clues work in word recognition?

Following the importance of context clues and some of the uses of context clues in word recognition, one should ask how context clues work? By answering this question, one can gain a better idea as to how to teach the use of context clues.

To understand how context clues work it must be recalled that the child brings to reading a background of experience and oral language. Likewise, the child must bring to the reading situation a habit of demanding meaning from his reading. A child must com-

bine his experience, his oral language, and the meaning he gets from his reading if he is to use successfully context clues in recognizing words. When he meets a word which he cannot recognize, he uses his experiences, oral language, and the meaning of the words, phrases, sentences, and paragraphs surrounding the word to anticipate what the word might be. Bond and Wagner state, "Instead of having to recognize the word from the total of words in the English language, the use of context clues limits the choice of words to the few that would fit the meaning of the passage being read" (5:172). By also using the other word recognition skills the child has at his disposal, he tentatively identifies the word and checks to see if the word makes sense. For example, if a child reads the sentence, "Jenny picked up her _____ to draw," he can, from his experience, limit the words to such possibilities as *pen*, *crayon*, *pencil*, or *chalk*. He would not have to select the word from the 800,000 or so possible words in the English language. By combining this information with various phonic clues, the child could recognize the exact word more quickly than by using only phonics.

With respect to the point that context clues may be used in conjunction with other word recognition techniques, Bond and Tinker state, "Meaning clues alone are not enough for good reading at any level. They must be accompanied by the use of a flexible set of word recognition skills. It is the interaction of all the word-study skills that forms the foundation on which a competent reader builds his reading structure" (1:322). DeBoer and Dallmann state, "Context clues are most effective when they are employed along with other methods of word attack" (8:111). In actual reading, the use of context clues is probably so closely tied in with other word recognition techniques that nei-

ther can be separated. Context clues alone are seldom adequate because they provide only one aid to word recognition. They may suggest one of several possible words but seldom point to the specific word. For example, in the sentence, "The mouse nibbled a piece of _____," any number of possible words could fit the meaning. However, by combining the sense of the sentence with the phonic clue that the word begins with a *ch* sound, the reader can readily supply the word *cheese*. Children should probably be discouraged from using context clues alone. By combining them with other word recognition techniques a child would be discouraged from wild guessing. Therefore, in relation to the discussion that follows, it should be remembered that whenever context clues are taught, they should probably be combined with other word recognition aids.

Some people might regard the use of context clues as untutored or guessing; and in a sense it is. However, it is probably more accurately described as inferential reasoning which must be developed, guided, and used in many areas of life. Nila Banton Smith states, "Surely this process of examining meanings, reasoning, and deducing an unrecognized word is not just a matter of chance guessing" (20:186). Kolson and Kolinger state, "Guessing is the mainstay of the contextual clue skill and should be encouraged, but wild guessing is a symptom of a disability in contextual clue use" (11:65). The sophisticated use of context clues, therefore, should probably be developed along with reasoning and the use of other word recognition skills.

The classification of context clues

Various attempts have been made to classify the wide variety of context clues. Although these classification schemes may be closely related to those for developing word meanings,

they also have relevance for the use of context clues in word recognition. Artley (3) identified ten types of contextual aids the reader might find in printed matter: typographical (e.g., quotation marks, parenthesis), structural (e.g., appositives, nonrestrictive clauses), substitute words (synonyms, antonyms), word elements (roots, suffixes, prefixes), figures of speech (similes, metaphors), pictorial representation (e.g., pictures, diagrams, charts), inference, direct explanation, background of experience of the reader, and subjective clues (e.g., tone, mood, intent). Likewise, McCullough (15) identified two general classes of clues, idea and presentation. Idea clues included pictorial illustration, verbal, experience, comparison and contrast, synonym, summary, mood, definition, and familiar expression. The presentation clues included the position of words, the sequence of a sentence or paragraph, and the general organization of a selection. From a study of 500,000 running words Deighton (9) identified four *key words* classes (definition, examples, modifiers, and restatement) and *inferential clues* for which the reader has no direct clue except his ability to draw inferences. In his dissertation, for which he won the IRA research award, Ames (1) found fourteen clues from his case studies of mature readers using a variety of contextual situations:

1. Clues derived from language experience or familiar expressions
2. Clues utilizing modifying phrases or clauses
3. Clues utilizing definition or description
4. Clues provided through words connected or in series
5. Comparison or contrast clues
6. Synonym clues
7. Clues provided by the tone, setting, and mood of a selection

8. Referral clues
9. Association clues
10. Clues derived from the main idea and supporting details pattern of paragraph organization
11. Clues provided through the question-and-answer pattern of paragraph organization
12. Preposition clues
13. Clues utilizing nonrestrictive clauses or appositive phrases
14. Clues derived from cause and effect pattern of paragraph and sentence organization

Concerning the Artley and McCullough classifications, Russell states, "these are often too technical for systematic use in the elementary school. . . ." (19:300-301). Likewise, Ames states in respect to his own study that "It must be stressed that much more research is necessary and one would be ill-advised to try to develop elaborate instructional procedures based on the present classification scheme" (2:81). An appropriate task regarding the implementation of context clues in word recognition would appear to be the development of a simplified scheme for classifying the numerous kinds of context clues identified. The next few paragraphs will suggest such a possible scheme.

Most context clues for use in word recognition seem to fall into one of three main categories: meaning bearing clues, language bearing clues, and organization clues. The meaning bearing clues use the sense of the sentence or sentence surrounding the unrecognized word. The category includes such clues for recognizing unknown words as familiar expressions and idioms, definitions, descriptions, examples, synonyms, antonyms included in the text, as well as comparisons and contrasts, and the tone, mood, and setting of what is being read.

The language bearing clues use knowledge of syntax, the structure of

sentences, as aids in word recognition. Hildreth states, "The use of context clues has its roots in linguistics" (13:156). There are a number of examples of language bearing clues. One such aid is the noting of phrases which may serve as a clue in recognition of modified unknown words. Another such aid is the recognition of unknown words through referral signal words, such as *these* and *same*, which refer to what has been stated previously. The associating of known words of one part of speech with closely related unknown words of another part of speech (such as nouns and verbs or adjectives and nouns) may serve as another clue. For example, birds fly and fish swim; grass is green, and old ladies usually have gray hair. Finally the recognition of the relationship of nonrestrictive clauses, appositive phrases, or prepositional phrases to other parts of a sentence may serve as another language clue.

Another group of clues involve how sentences or paragraphs are organized. Within this group are such aid, as the realization that an unknown word is part of a series of words and an appreciation of the relatedness of main idea to details, of questions to answers, and of cause to effect within sentences or paragraphs.

Therefore, it would appear that many context clues fall within one of these three classifications: meaning bearing, language bearing, and organization. The scheme is not all inclusive. For example, the scheme does not include contextual aids from pictures or the typography. However, it seems to simplify the complex classification schemes previously suggested.

Possibly to date, sufficient emphasis has not been placed on the role that context clues play in word recognition because the classification schemes have appeared to be too complex. The preceding simplified, yet comprehensive scheme for the classification of

context clues is proposed in the hope that it will foster further investigation in this area. Because of the simplification, teachers may feel encouraged to teach the use of context clues as knowledge of the structure and implications for teaching context clues is more attainable.

Teaching context clues

Although the teaching of context clues seems complex, there is evidence that teachers should attempt to do so. McCullough (15) concluded that adults fail to use context clues because they were never taught how to use them. In a study by McKee, children were found to use context clues effectively in only about one third of the opportunities presented (17:73), while Porter (21:316) found that third grade children could give an appropriate meaning of a word left out of context in about 80 percent of the cases. Since children may not develop the skill of using context clues without specific training, they should be given help in its development. Hester states, "Systematic guidance is necessary to help him learn this important technique for recognizing words" (12:138).

The goal of instruction for the use of context clues in word recognition is probably to develop such skill that context clues are used easily and automatically. If a child makes as many errors in contextual reading as he does in reading a list of words, he is probably failing to make extensive use of context clues. The problem becomes one of developing instructional procedures.

There is little evidence that children will use context clues more effectively if they have knowledge of sentence patterns. McKee states, such knowledge 'contributes little if anything to the pupils' comprehension of the sentences' (18:185). However, children will probably benefit from knowing that 1) a word makes sense within a

sentence; 2) readers can use sentence meaning to help recognize an unrecognized word; and 3) more than one word may fit the meaning of a sentence and, therefore, structure and phonic clues are often necessary.

In preparing to teach the use of context clues, materials should be carefully scrutinized to determine if the content gives adequate clues to words which children have not yet learned to recognize in their reading but possess in their speaking-listening vocabularies. Only a few such words should be presented at any one time, as too many unknown words make using the context difficult and might encourage wild guessing. The exact ratio of unknown words to known words probably depends on the children's intelligence, maturity, and background, although Bond and Tinker suggest that about one word in every forty running words should be unknown (4:321). Nevertheless, the materials used should be easy enough for children to recognize the unknown word without too much difficulty.

The materials should reflect the language patterns of the child whenever possible, be at a concept level appropriate to the children, and have the unknown words evenly distributed throughout the text.

After the materials have been selected, provisions need to be made, as in any reading activity, to assure that children have the background to read the materials through prior direct and vicarious experiences, including discussions, explanations, demonstrations, and field trips. The children need then to be given direct guidance in reading using context clues. Such guidance may include talking about the idea so that knowing the meaning of a sentence or paragraph will help in recognizing unknown words; encouraging children to read the entire sentence before deciding on an unknown word, and how context clues can be

combined with other word recognition techniques, such as phonics; reading the exercises orally to the children and having the children supply the unknown word; covering a few lines in a story and having the children anticipate what will come; asking which part of a sentence or paragraph gives a clue to an unknown word; and showing that some words must be recognized in context, such as, *wound* the clock and *wound* a deer.

Pictures may be used in the lower grades to develop an orientation toward the use of context clues. Hildreth states, "The use of picture clues is similar to the use of context clues for deriving the meaning of new or forgotten words" (13:156). In the lower grades much of the content is carried by pictures in the readers. However, Weintraub found that children do not make as much of illustrations as they might (23). Therefore, children may be taught to look at pictures to get clues for unknown words since pictures are a part of the total context and since they may be helpful in demonstrating to children the concept of using context clues. Picture-word cards, picture dictionaries, and introducing new words in advance of reading with the aid of pictures can be helpful in getting children to use pictures as aids in word recognition.

As soon as children have developed enough sight words to read sentences, pictures become less and sentences become more important for developing the use of context clues. Sentences, paragraphs, riddles, and stories with parts of words omitted may be given to children. Emans (10) found the following hierarchy of exercises, easiest to most difficult, to be significant at the 001 level of confidence for children from grades three to ten:

1. No clue given other than context
2. Beginning letter given
3. Length of word given

4. Beginning and ending letters given
5. Four word choice given
6. Consonants given

Teachers can probably think of variations to the exercises. For example, in the multiple-choice type of exercise, words with the same sounds or words with similar configurations may be used.

In summary, this paper shows the importance of helping children develop skills in the use of context clues in word recognition and makes suggestions as to how to teach these skills.

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The Role of Phonics in Teaching Reading

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IN THE PAST, there has been much controversy among teachers concerning the value of phonics to the teaching of reading. Some have argued that phonics has limited usefulness because of the relatively unphonetic character of the English language; others have felt that such knowledge is not only a useful but necessary part of the reading program. Fortunately, there are now some limited agreements about the use of phonics in the teaching of reading.

There is no longer any serious doubt about whether phonics content should be included in the reading program; teachers and reading specialists almost universally accept it as an indispensable tool for teaching children to read. Disagreements concerning phonics are

still very much in evidence, but they have now centered largely on questions of 1) how phonics should be presented, 2) what content should be included, and 3) when should it be emphasized. Though space will not permit a penetrating analysis of these questions, an attempt will be made to raise some basic issues regarding the manner in which these questions may be answered and to provide reading teachers with guidelines for action until results of research and practice answer them more adequately.

How should phonics be taught

Historically, there have been several different approaches to the teaching of phonics. In recent decades it has been customary to categorize them into two main types, analytic approaches and synthetic approaches.

The *analytic approaches* to teaching phonics are those approaches in which the teacher first teaches a limited number of sight words, possibly 75 to 100, and then teaches the reader to utilize these known words to infer letter-sound associations for unknown words. In presenting phonics analytically, a teacher might teach a number of sight words, including, for example, *bat*, *bill*, and *bug*. Then by *analyzing* the words and noting that they all begin with the same sound, the students learn the letter-sound association for *b*. Subsequently, when unknown words such as *basket*, *bitter*, and *bundle* occur in his reading, the student will know the *b* sound and will thus have a clue to help him identify the words.

The *synthetic approaches* to teaching phonics are those approaches in which the teacher first teaches the sounds which certain letters represent and then teaches the pupil to combine (or synthesize) the sounds into words. Following one of the synthetic approaches, a teacher would first present the sounds represented by the printed form of the letters: for example, *p* usu-

ally sounds like *puh*; *a* sounds like *a*; and *t* sounds like *tuh*. When the sounds are blended, the word is *pat*. Later on, when the student meets words like *pen* and *pig*, he will know that they begin with the *p* sound and thus he will have a clue to their identification.

Since the early 1930's, those who favored analytic approaches have been in the majority, but there has been continuous support for the synthetic approaches. Recently, since linguistic scholars have focused attention on "breaking the code" as the prime emphasis for early reading instruction, the synthetic approaches have gained remarkably in their popularity. Beginning with the Boston studies in the mid-fifties (7) and continuing with the Sparks-Fay study (11), the Bear study (3), the Bliesmer-Yarborough study (4), and the *First and Second Grades Studies* (8), evidence has been presented to support the contention that synthetic approaches provide a more rapid start in reading than analytic approaches do.

Chall (5) recently presented a convincing case for those reading programs which make use of the synthetic approaches. Under a grant from the Carnegie Foundation, she has made a searching analysis of the major research findings related to problems of beginning reading instruction. One of her major conclusions was that "code emphasis" approaches (synthetic approaches) proved superior, at least in the primary grades, to "meaning emphasis" approaches (analytic approaches).

There does appear to be some question about whether early gains made by synthetic approaches can be maintained as the children progress through the reading program (11). Further longitudinal research is needed on this very important point, but one would think that intermediate grade teachers and curriculum workers could find

ways of maintaining reading gains achieved by primary grade teachers, almost regardless of the manner in which the gains were achieved.

This assumption, however, may be entirely contrary to fact. Children taught by synthetic methods may over-learn some word-analysis habits which later militate against reading growth; they may learn to concentrate so intently on word analysis that attention to meaning is impeded; they may acquire habits that slow down the reading rate and thus make it difficult to comprehend rapidly; they may grow to believe that reading is a process of drill on seemingly meaningless sounds and thus grow to dislike reading. If in their zeal for phonics mastery, primary grade teachers have overemphasized habits that will need to be unlearned at a later date, then it does seem probable that children taught by the more moderate or the more analytic approach would become the better readers.

With present knowledge teachers still must rely somewhat on their own judgment about what is best. It is comforting to note that children do learn to read by any of several methods. At this point in time a reasonable course seems to be 1) teach letter-sound associations relatively early in the reading program with a synthetic emphasis while at the same time considering interest and comprehension as prime goals and prime guides for teaching procedures, and 2) after the child has progressed sufficiently in his word recognition ability, shift the emphasis rather rapidly to comprehension while at the same time trying to foster high interest in reading.

What phonic content should be taught

Through the years much information has been compiled concerning speech sounds and their written representations. It is a generally accepted

fact that some of the information is helpful in teaching reading and some of it is not. In fact, this matter is implied by the way phonics is defined. *Phonetics* is generally defined as the science of speech sounds, while *phonics* is defined as that portion of phonetics which is applicable in teaching children to read. For the purpose of teaching reading, it is neither feasible nor desirable to try to teach all that is known about phonetics.

One of the basic reasons for including any phonetic knowledge in a reading program is to improve the efficiency of the teaching process. To accomplish this good, programs should concentrate on content which occurs frequently in reading, is easy to teach, and is relatively regular in its application.

Studies by Clymer (6), Fry (10), Bailey (2), and Emans (9) have investigated the question of "what content" by making use of one or more of the preceding criteria in judging the value of selected phonic content. They have found that at least some of the phonic content that is usually included in reading programs is not adequately justified by these criteria. These studies need to be expanded and amplified into other pertinent areas, but they do provide some substantial data which should prove extremely helpful as teachers concern themselves with problems of what phonic content *should* and *should not* be included in the reading program.

Some basic considerations

In determining the proper role of phonics in a reading program one needs to consider underlying factors which relate to this role. Some of the basic considerations follow.

Children differ in their ability to benefit from a sound-oriented approach to the teaching of reading. It seems plausible to assume that some children learn better from a method which em-

phasizes a whole-word approach to word recognition while others probably learn better from a method which emphasizes sound-symbol correspondence. To put it another way, some children probably learn better through visual means while others learn better through auditory means. Generally speaking, teaching materials are designed with the underlying assumption that all children learn equally well with all modalities. This assumption may or may not be correct. Thus it seems logical to advise that whenever a child is experiencing difficulty with learning to read, the teacher should investigate the possibility that he may be emphasizing the least effective modality for the child in question.

Research studies that arrive at generalizations about which method works best for large groups of children miss a very basic point: i.e., methods which produce significantly higher mean scores for the total group do not necessarily work best for each individual student in the group. Certain individuals may profit more from a method which has been shown to produce significantly lower mean scores than another. Teachers should recognize this possibility and adjust their teaching accordingly.

It seems likely that some words are more easily learned by a phonic method than by a sight method, while others are more easily learned by the sight method. High frequency, but irregularly sounded, words probably are more efficiently taught by a sight method while phonetically regular words and words which contain easily learned sounds probably are better taught by a phonic method. Learning the word recognition skills is a step in a developmental process, one of the goals of which is to know a large number of words by sight. Accomplishing this goal by the most efficient method is important. Sometimes the most ef-

ficient method is determined by the nature of the word itself.

A given child may be able to utilize a sound-oriented approach better at one age than another. The concept of reading readiness suggests that there is an optimum time in the developmental process for a child to learn any given skill. Presumably, attempts to teach a skill prior to this optimum time will prove unsuccessful and may even cause emotional or psychological problems which seriously retard normal growth. Also, it is assumed that if instruction is postponed until later than this optimum time, the skill involved is not as readily learned as it would have been at the optimum time.

In a like manner, each child may have an optimum time in his total development for learning phonics content. For some, phonic readiness may be achieved relatively early in school while others may take considerably longer. In presenting phonics content, teachers should consider the natural growth patterns of the pupils.

How the teacher feels about the teaching procedure which he is following seems to make a difference in the effectiveness of the teaching method. If children can learn to read by any of several approaches, which apparently they can, then how the teacher feels about the method may well be one of the most important factors in determining its success. If the teacher is philosophically committed to the method he is using, then he is likely to do a good job of teaching reading regardless of how good or how bad the method might be. When selecting a particular phonics program or determining degree of emphasis on content or methodology, one of the key factors to be considered should be what the teachers think about it.

Interest may not be directly related to method. It is doubtful that one method is inherently more interesting than another. Enthusiastic teachers

can take very dull content and make an interesting lesson out of it. Others can take what seems to be very interesting material and create pure drudgery for children. Whether a method is interesting is probably less related to method than it is to other factors related to the teaching-learning situation.

Two factors which influence pupil interest are variety of presentation and appropriateness of teaching level. If presentations are varied within a method, interest is not likely to be lacking. Likewise, if a child is given a learning challenge, but at a level where he has a relatively good chance for success, he will seldom lose interest. The important point related to phonics is that approaches probably should not be accepted or rejected because of interest or lack of it. Rather, *effective* approaches should be selected for use and then adjustments made in the teaching situation to maintain a high interest level.

Guidelines for the reading teacher

In teaching phonics, the major task which confronts today's reading teacher is how to maintain a proper balance between attention to phonics and attention to other important reading goals. The myriad of research results and the verbal wranglings of reading "experts" are likely to confuse the average teacher about the proper course of action as he performs the daily tasks of teaching reading. The following are suggested as broad guidelines to follow as teachers attempt to determine the role of phonics in the teaching of reading.

Phonics content is taught so that children have a tool to identify words which are known in the spoken form but not in the printed form. All decisions concerning the use of phonics should reflect this purpose. Teachers should regularly ask themselves whether the phonic content being taught and the methods being em-

ployed in teaching it contribute to the accomplishment of this major purpose. If not, the teacher should adjust accordingly.

Phonics is but one aspect of word recognition; word recognition is but one goal of the reading program. Phonics is best used in conjunction with other word recognition skills. As a child learns to read, he gradually learns several ways to identify words. Ideally, he learns them in such a manner so that he can coordinate and combine their use as he attacks unknown words. The ability to use sound-symbol relationships is one of the more important reading skills, but it is just one and should be so considered.

The second aspect of this guideline has to do with the relationship of word recognition skills to the total reading program. Word identification techniques should be taught in a manner that facilitates, not hampers, the attainment of other important reading goals. Intensive attention to phonics can seriously impair progress toward goals of speed, interest, and meaning; teachers need to recognize this possibility so that emphasis can be adjusted to best serve the total reading program.

The teacher is the key person in determining the success of a reading program. Whether children learn better by one method than another is largely determined by the skill and enthusiasm of the teacher. In recent years, research has consistently shown that the quality of the teacher in the classroom is the most important variable relating to how well the pupils in a class learn to read. Effective functioning in such a key role requires that a teacher know as much as possible about 1) phonics and research related to phonics, 2) the total reading process, and 3) the pupils' reading abilities and needs.

Acting in terms of the preceding guidelines leads one directly to the next. *Teachers should take an active part in determining the role of phonics*

in the reading program. On the whole, modern-day teachers are well-trained, competent people who are capable of determining the reading needs of pupils and adjusting the program to meet these needs. Caring for individual differences is a constant job, and only teachers are in a position to know these needs well enough to adjust instructional procedures to meet them; teachers should be encouraged to do so.

This guideline means, for example, that teachers should adjust content and method for children who are slow learners or fast learners; for children who have speech and hearing problems; and for those who learn better through visual means than through auditory means. It means that teachers need to recognize and adjust for the fact that some phonic content is learned by all pupils without any direct teaching.

It is recognized that adjusting for individual differences is an age-old problem that has no easy solutions. Nevertheless, with the wide variety of high quality materials available to today's teachers, intensive efforts toward recognizing differences and providing for them can produce rich benefits for the pupils.

Relatively speaking, phonics should be taught fairly early in the reading program. Basically, the two major goals of a reading program are *word recognition* and *comprehension*. These goals can hardly be separated, but for instructional purposes it is probably better to place the heavy emphasis on one and then the other. Early in the process of learning to read, word recognition (including phonics) should receive major attention; and as progress is made, the emphasis should be shifted to comprehension.

Summary

Phonics has an extremely important role to play in the teaching of reading.

In this paper it is assumed that phonic analysis is best used in conjunction with other word-identification techniques for the purpose of unlocking words which are known in their spoken form but unknown in their written form. It is known that the pupils can learn to read by any of a number of methods. Thus teachers, rather than method, are the most important variable in the teaching process. Teachers are encouraged to know research relating to methods and materials and to utilize their knowledge in adjusting their procedures to the individual needs in their own classrooms. Guidelines for making these adjustments are provided.

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Linguistic Principles and Reading Practices in the Elementary School

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THE LATEST INFORMATION on language suggests that, contrary to popular belief, writing is not recorded speech or "written down talk" although at times it can be exactly this, as demonstrated by certain kinds of literature written in dialect and intended to be read or otherwise rendered orally. The new information suggests instead that English speech and English writing are mutually independent systems of symbols, each representing linguistic forms—linguistic forms being abstract language units conveying both lexical and grammatical information. Listening involves the identification of lexical and grammatical information that is represented phonologically, and reading involves the identification of information that is represented orthographically.

Linguistic forms

Consider the linguistic forms which are represented by the spelling *l-e-a-d*. When the linguistic form carries the information "it is a noun and refers to a metal," the word is pronounced /lĕd/; when it conveys the information "it is a verb and refers to guiding or directing," *l-e-a-d* is pronounced /lĕd/. Hence, one says, "The metal pipe was made of /lĕd/," but "I will /lĕd/ you out of the wilderness," although /lĕd/ and /lĕd/ are spelled alike.

Also consider a couple of linguistic forms represented by the pronunciation /mĭst/. In the sentence, "I /mĭst/ the exit and could not get off the expressway," the spelling *m-i-s-s-e-d* is used because it represents the linguistic form conveying information relating to a past tense verb indicating "to locate." A noun referring to

water in the form of particles floating near the surface of the earth would be represented by the spelling *m-i-s-t*, as in the sentence, "The dense morning /mĭst/ hid the house from view." Comparing spellings and pronunciations in this manner suggests that one is not an actualization or representation of the other. More than phonology and orthography are involved here. Lexical and grammatical information are necessary before the correct spelling or pronunciation of a given word can be identified.

Reading and understanding

Language consists of linguistic forms which are physically represented by speech, by writing, and presumably in still other ways. In other words, speech is one medium through which language is expressed, writing is another. Neither speech nor writing is *the language*; both of them are expressions of the language. Speaking and writing are, therefore, only indirectly related to each other through linguistic forms; they are not representations of each other. The linguistic forms are the units which link both speech and writing to meaning. Strictly speaking, the process of reading *per se* does not involve meaning in the sense of understanding discourse; it merely involves the identification of the linguistic forms. The interpretation of the meaning from the linguistic forms is, of course, not limited to reading but applies to any form of communication, and its development is the responsibility of the total school program. But since there is little point to reading unless meaning is being derived, it is both natural and good that teachers are concerned with the understanding of discourse while they teach reading. However, it would be more accurate to say that what they are doing is teaching both reading *and* understanding.

Speech and writing

Although speech and writing are different manifestations of linguistic forms and do not represent each other, the fact that English writing is alphabetic does make for some correspondence between them, and one should take advantage of this correspondence in teaching children to read. Actually, the present-day spelling system is a fairly accurate reflection of late Middle English pronunciation. English as it was spoken about 500 years ago. At the same time it should be recognized that any language is a composite of dialects, each dialect having its own lexicon and system of grammar manifested via speech or writing although there are many languages that have only spoken expression and are not manifested through writing. The writing system for a language usually uses many customs (lexical and grammatical) that differ from those used in spoken expression. This fact creates many difficulties for the beginning reader:

Children automatically learn linguistic forms as they learn to speak. They begin with trial and error imitations and memorization of the language they are exposed to and participate in. Gradually children begin to notice certain regularities within the grammatical system, the phonological system, and the vocabulary of the language. When children begin noticing such regularities as the order of words for different kinds of sentences, the formations of plurals, that only a limited number of sounds are used in speech, and that the voice is raised when asking certain kinds of questions, they can begin generalizing and learning more efficiently. By the time they report to school and are ready to begin learning to read and write, they already are in command of a large stockpile of linguistic forms which they can express through their speech. Learning to

read and write will enable them to associate graphic configurations with the linguistic forms they already know and through reading and writing to learn more linguistic forms, extending their language competence while doing so. It seems obvious, therefore, that the easiest access to the written expression of language for a child is through his own speech. For this reason it probably does not do too much harm at least for primary grade teachers to view writing as graphically recorded speech—provided, of course, that the written materials they use for instructional purposes do reflect the language spoken by the children.

Dialects of English

The dialects of American English may be classified on at least three parameters: geographic region, social class, and functional variety. An educated Bostonian speaks differently from an equally educated Texan. An educated Bostonian speaks differently from an uneducated Bostonian. An educated Bostonian speaks differently when addressing a formal meeting than when talking casually with friends at a social affair. This same educated Bostonian uses still different dialects or varieties when he writes an informal letter to a close friend and when he writes an article for publication in a professional journal. It is obvious that each American may use a variety of dialects. No American speaks the *English language*; each American speaks a dialect or dialects of the English language. Each of us speaks a variety of English that enables us to get along with other members of our social and geographic groups in whatever situations we communicate with them. All dialects are equally good from a language point of view; none is more logical or correct than any of the others. Inevitably the speech used by educated people in any region assumes the role of the prestige

dialect and becomes the standard speech of that region. There is no uniform standard dialect spoken throughout our country.

For purposes of discussion it is convenient to divide language as manifested through speech into three subsystems: lexical, grammatical, and phonological. These are interdependent systems but their interrelationships will not be discussed here. It is important, however, to be aware of these subsystems if one is to understand dialectal variations and their relevance to reading. Similarly, language expressed through writing may be discussed in relation to its lexical, grammatical, and orthographic subsystems. Each dialect, as represented through speech or writing, has its own lexicon or inventory of words, its own system of morphology and syntax, its own pronunciation scheme, and in some instances even its own spelling schemes. For example, what one man calls a *frying pan* or *skillet*, another probably calls a *spider*; some say *sack*, while others probably say *bag*. Some people use *dived* as the past tense of the verb *dive*, while others use *dove*. Does the reader say *ought not* or *hadn't ought* or perhaps *didn't ought*? While one person says, "Please park the car," a Bostonian says, "Please pahk my cah." Each time the writer has the word *although* in this paper, she has been careful to spell it *a-l-t-h-o-u-g-h*; however when she writes a casual letter to her sister, she always spells in *a-l-t-h-o*.

Obviously the similarities among the dialects of a given language are far greater than the differences or men would be unintelligible to one another and one could not say that the dialects were variations of the same language. But differences do exist and they have to be reckoned with, most particularly in the early stages of learning to read and write.

The educated adult uses several va-

rieties of spoken and written English and is aware of many more. He shifts from one variety to the other easily as a speaker, listener, reader, or writer. Children entering school usually know and use only one variety of spoken English, an informal variety of the regional and social dialect used within the home environment. Their speech reflects the features of pronunciation, vocabulary, and grammar of this personal home dialect. Now, almost without exception, reading instructional materials are written in a formal, educated, so-called "uniform standard" dialect which nobody speaks anywhere in just that form. This written dialect may and does represent language forms unfamiliar to children struggling with beginning reading in many parts of the country. Children who have had a lot of stories read to them by someone do have an advantage over those children who have not been read to since the former group has been exposed to this written dialect to some degree. The written dialect and the dialects spoken by the children may differ in vocabulary, grammar, and in pronunciation-spelling patterns. When this variation happens, children are confronted with trying to learn a new representational system and new language forms, too—all at the same time—something that anyone, even Einstein, would find hard to do. The more divergence there is between the dialects spoken by the children and the dialect of the written materials, the more difficult is the job of learning to read likely to be.

In fairness to children, the standard dialect of their region should be taught in the schools, and *beginning reading materials* should be based on the children's speech patterns. In addition, primary grade teachers, especially, need to be aware of similarities and differences among the dialects used by themselves, by their children, and in the instructional materials they use.

They also need to know how to relate dialectal diversity and the conventional system of English spelling since English spelling is uniform across dialects. Generally there is no one correct way of pronouncing a given word, and words are frequently pronounced differently in different dialects. But each child learns early in school that there is one and only one correct way of spelling a word, regardless of dialect.

Phonological variations

Consider now some specific instances of dialectal variations in relation to the teaching of reading, beginning with auditory discrimination. The various dialects of English share a common reservoir of sounds and they pattern these sounds similarly; but there are differences among them, too. Children become very proficient in detecting slight and subtle differences in speech sounds that are significant in distinguishing between words in their dialects, such as the exclusion and inclusion of voicing that makes the difference between /f/ and /v/. At the same time they become just as proficient in ignoring other differences among speech sounds that are not significant in their dialects. In other words, they learn not to hear differences that make no difference in their dialects. If they didn't discriminate, they would go crazy trying to learn to speak or to understand what anyone else said. Vowel phonemes are particularly susceptible to differentiation among dialects. Auditory discrimination tests and reading instructional materials that do not take dialectal distributions of phonemes into consideration are of questionable value at best. Failure to distinguish aurally between two sounds or two words may mean nothing more than that the test or instructional materials do not reflect the child's dialect. For example, Spanish speaking children in New York commonly cannot hear a difference be-

tween the words *ship* and *sheep*. In their native dialect /i/ and /ē/ are not in contrast, that is, make no difference between words and are, therefore, considered the same phoneme. So these children have learned not to distinguish between two very different phonemes of another dialect. For the same reason these children cannot aurally distinguish between pairs of words like *ladder* and *latter*, *wash* and *watch*. Dialectal distribution of phonemes also has implications for the use of Initial Teaching Alphabet materials. In some respects uniformly written i.t.a. materials are scarcely any improvement over materials written in traditional orthography.

Dialectal variation in the distributions of phonemes has implications for rhyming words, too. Words that rhyme in one dialect do not necessarily rhyme in another dialect. For example, *f-r-o-g* and *l-o-g* rhyme in one dialect because these words are pronounced *frog* and *log*, but in other dialects they may be pronounced as /frōg/ and /lōg/ without rhyming. Unless rhyming words are selected in the light of pupils' dialects, the concept of rhyming breaks down into meaningless confusion. For this reason the recently developed reading materials based on spelling patterns should be used warily, unless they have made provision for dialectal differences in pronunciation or unless the teacher does so. Spelling does not determine pronunciation in English.

Homophones—words pronounced alike although having different meanings and spellings—also differ from one dialect to another. *Ship* and *sheep* are not homophones for some, but they are for those Spanish speaking children mentioned earlier. They respond to *ship* and *sheep* as others do to *r-i-g-h-t* and *w-r-i-t-e*; that is, they pronounce them alike although they recognize the differences in spelling and meaning. To be homophones, sets of

words must be selected in relation to pupils' dialects.

Another area in which phonological variations among dialects must be considered is in the choice of key words as mnemonic devices for remembering and recalling speech sounds. It is of little use, for example, to tell children that the big bird that hides its head in the sand begins with /*ɔ*/, the short *o* sound, when they call that big bird an /*ɔ*/strich, not an /*o*/strich. Key words fail in their purpose unless they reflect the pronunciations used in the dialects the pupils speak.

There is no uniform set of pronunciations that can be used validly for teaching sound and letter correspondences, or phonic rules, throughout the country and across all dialects. Published instructional materials that represent the pronunciation of only one dialect are valid only for that one dialect. Since phoneme-grapheme correspondences differ among dialects, the differences need to be indicated in the instructional manuals so that teachers may select the phonic rules appropriate to the dialect or dialects they happen to be working with.

Grammatical and vocabulary variations

Reading problems may also occur in relation to the grammatical and lexical subsystems of language. Grammar refers to that part of the language that deals with the signals by which meaningful relationships within sentences are shown. This area includes how individual words are formed and how words are arranged to make sentences. For example, most English dialects use an *s* form to designate plurals, but not all of them do so. In some dialects singular and plural words may be pronounced the same way with plurality being designated in some other way. In such dialects one may say "I got one book" and "I got three book," "I got three books." Since *three*

designates the number, an *s* at the end of *book* is unnecessary. For children speaking such dialects *book* and *books* may be homophones, words pronounced alike although differing in meaning and spelling. This circumstance does not mean that these children do not see the *s* at the end of the written word or that they do not necessarily know that one word is singular and the other one plural. The *s* ending is just not part of their dialect so they do not pronounce it when reading. In some dialects it is appropriate and correct to say "He see them" rather than "He sees them." Children speaking these dialects are not leaving off an *s* ending; there is none in their dialect. It is normal and natural for children learning to read—trying to understand what they are reading—to read as they themselves speak. It is even desirable that they do so in the initial stages since this indicates that the content is being understood. However, rendering written material orally as one speaks raises the question of what constitutes an error in reading. Saying *book* for *books*, *play* for *played*, or *we was* for *we were* are not always mistakes; but merely the way some people talk.

Vocabulary differences among dialects create still other difficulties when uniform reading instructional materials are used. There are two basic problems related to dialectal variations in vocabulary. The first is that different dialects may use different names for the same things. What the book calls a *pail*, the children may call a *bucket*; what they call *curtains* may be *blinds* or *shades* in children's reading materials.

The second problem is that many words have similar, but not identical, meanings in different dialects. The verb form *carry* may be used as an example here. In one dialect a person may carry books, purses, and other small objects which can be supported

in his hands or arms, but he does not carry people, unless they are infants or are incapacitated and laid out on stretchers. During the three years she lived in South Carolina the writer never became reconciled to *carrying people*, in the sense of conducting or escorting them to church, to the airport, or to the theater. In the writer's dialect one *takes people* to such places. All words have a range of meanings, and this range may shift from one dialect to another. Children who try to learn to read from instructional materials that contain familiar word forms, but whose meanings do not make any sense to them, have difficulty in understanding what reading is all about. No wonder that first grade children often feel that books talk funny.

Summary

Variations in pronunciation, grammar, and vocabulary among dialects and differences in the customs used by speech and writing are important to the teaching of reading in the elementary school, particularly in the primary grades. For too long primary grade teachers have been left with the responsibility of trying to reconcile uniformly written instructional materials with dialectal variations in language. In most instances they have failed because of inadequate knowledge. Linguistic principles related to dialectal variations need to be incorporated into teacher-training programs as well as into instructional materials. Attention needs to be given to dialectal variation in the preparation of materials for children to read in the initial stages of reading instruction. In addition, dialectal variations in pronunciation, grammar, and vocabulary need to be spelled out in guidebooks and manuals so that teachers can make reading materials more meaningful for their pupils as well as for themselves.

Syntax and Semantics in Reading

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The descriptive principle

IN RECENT YEARS it has become clear that the only legitimate approach to the study of the English language is descriptive. Prescriptive methods, based on the premise that it is the responsibility of the school system to make *a priori* assumptions about the language habits of people, are no longer defensible. Whatever English or reading teachers tell their students about the language should reflect as much as possible the facts of current usage; that is, it should be a realistic description of how speakers of English use the language today in various situations.

This descriptive principle has most commonly been applied to the study of grammar and usage; but if it is interpreted a little more broadly, it has important implications for reading education as well. Specifically, if students are to be efficient, intelligent readers, they must be trained to handle the syntactic and semantic problems that will face them in adult life. If much of their reading education is not focused on the realities of daily practice, the program is not descriptive; does not reflect the demands of popular usage; and is, therefore, open to the kind of attack currently aimed at the prescriptive teaching of grammar and usage.

Syntactic analysis

One example is the study of syntax; that is, the arrangement of words in a sentence to show their relationship. It is probably not too much a wrench of this traditional definition to extend the term to encompass the study of sentence arrangement within a paragraph, including such questions as the following: What is the balance between loose

and periodic constructions? between long and short sentences? between statements and questions? How does the writer employ repetition and exploit metaphor? Where does he quote from other sources? What devices does he use to emphasize his major points and to clarify the development of his theme? Such stylistic analysis is important in the education of an efficient reader since it trains the eye to notice the syntactic patterns and rhetorical devices used by a writer to organize and dramatize his ideas.

This sort of syntactic analysis as a standard phase of the developmental reading program throughout the public schools has been neglected. For one thing, vocabulary study rather than syntax has received most attention. And although it is true that lexical content, which includes such features as the balance between native and borrowed words and the use of slanted vocabulary, is a vital characteristic of style, it has been overemphasized at the expense of the larger syntactic structures. Such emphasis, which encourages students to look at language largely in terms of single words, is a mistake. Because university English departments have concentrated on the historical approach to literature, teachers have not been trained to analyze prose style and have thus concentrated on the bits and pieces of language—a simpler, more mechanical process. Training in stylistic analysis and practical criticism has been largely restricted to honors or graduate students; and although courses in the history and structure of the English language are appearing more frequently, the influence of linguistics on classroom practice is still slight.

Traditional vs. contemporary material

But assume that such analysis either is or will shortly be a standard phase of an increasing number of progressive

reading programs. It is then a matter of ensuring that the material used for practice meets the requirements of the descriptive principle. The sentences, paragraphs, and essays used in comprehension and interpretation drills should prepare the student to handle the kind of syntax and thought patterns he will be faced with by the powerful and well-organized forces in society who will constantly be attempting to inform, reform, persuade, and deceive him. As a result, it is folly to depend on literary materials as the foundation for a reading program. The teacher who undertakes extensive *explication de texte* with Swift, Dickens, or Faulkner may be training students to read the literary classics, but not necessarily to read other things that in some ways are more important. This is not to say that the ability to handle the often complex thinking and sentence structure of literature is not valuable; however, it is important to remind one's self that there is no necessary transfer to reading material of a much different kind—the daily paper, for instance. No doubt there is a certain elegance in the Senecan aphorisms of Bacon, in the grandly Ciceronian periodic constructions of Milton, and in the flamboyant, romantic prose of Ruskin, but undue attention to such reading takes valuable time from the analysis of contemporary prose, which is largely based on speech. If the reading program does not pay a good deal of attention to the prose of the mass media, it is not descriptive and fails to provide the students with some civil defense against the media fallout that all meet every day.

The writer realizes that he is open to the charge of talking like a Philistine, of de-emphasizing the noble literary heritage of western man, of advocating that one orient mass education to the transient and often vulgar and tawdry products of a plastic, commercial culture. If he is charged with

these things, he is misunderstood. His point is that if the products of the schools are excited about Shakespearean drama and open the works of Jane Austen, Stephen Crane, and Shirley Jackson with enthusiasm and yet are not efficient readers of *Time* magazine or the daily newspaper, then their reading education has been a failure. They are literate illiterates in a world that can less and less afford them.

Newspapers

The daily newspaper has been mentioned twice because it is a crucial component of any reading program which pretends to be descriptive and to reflect the reading habits of people generally. The daily paper is the print medium which most students will read more often than any other for the rest of their lives. In the brief space permitted here examples of how a casual approach to the syntax of the newspapers can leave the reader deceived and misinformed will be offered.

At least three syntactic and semantic problems are immediately apparent in reading a news story:

- 1) The statement or suggestion of the headline, and its accuracy in the light of the story following.
- 2) The concentration of information in the lead paragraphs and the subsequent decline of syntactic compression and semantic content.
- 3) The frequent use of direct and indirect quotations.

For example, the newspapers of North America on April 1, 1968, featured two dramatic stories: President Lyndon Johnson's announcements of a bombing pause in North Vietnam and of his withdrawal as a presidential candidate. One major Canadian paper headlined the first story as follows: **NORTH VIETNAMESE SCORNFUL OF LBJ'S HALT IN BOMBING**. The writer's immediate reaction was one of disgust and of a certain despair. After all, the headline was quite direct and un-

ambiguous. The lead, however, read as follows:

"WASHINGTON—A new Vietnam peace campaign gained momentum today following President Johnson's decision to halt the bombing of North Vietnam, but early indications point to rejection from Hanoi."

The efficient reader will immediately note that being "scornful" is not quite the same thing as "early indications point," and anyone who is distracted by the capital letters of the first clause and lets his eyes skip carelessly over the end of that opening compound sentence is probably still thinking of the North Vietnamese either as a bunch of stubborn Commies or as firm and noble people who will not give in to military blackmail—depending upon one's political bias.

The next paragraph begins, "North Vietnamese sources in Peking branded Johnson's new peace overture . . ." That phrase "in Peking" is an important qualifying syntactical unit which negates the original headline and changes the entire complexion of the story.

The third paragraph begins, "The Peking correspondent of the Japanese Kyodo news agency quoted the sources as saying. . ." How far has one come in three sentences? A Japanese reporter's quoting of anonymous sources in Red China has been headlines as **NORTH VIETNAMESE SCORNFUL**. A guess at the number of readers who noticed that something was lost in the translation, is not an optimistic one.

At this point in the story the 10-point type was replaced by smaller type, an editorial device which suggests that the most important part of the story is over.

But the intelligent reader will dig deeper into the fine print and uncover this: "There still has been no official comment from Hanoi, however, and in Prague a North Vietnamese diplomat

is reported to have said his government intends to give serious study to Johnson's curtailment of the bombing." Vague as it is, this report is at least as credible as the anonymous tip to a Japanese correspondent in Peking. In any case, it exposes the original headline as a lie, and why the editors chose to place the semantical and syntactical emphasis on the negative aspect of the story is the kind of problem in reading and logistics that public school classes should be analyzing almost daily. The thought and style of Matthew Arnold or Arnold Toynbee might be more sound and elegant, but most students will never read Arnold and Toynbee—they will, however, read the newspaper that is tossed daily on the doorstep.

Across the page from the Vietnam story was an Associated Press interview with Senator Robert Kennedy, which reported Kennedy's reaction to Johnson's withdrawal from the campaign. The headline read as follows: **KENNEDY NOT TOO OPTIMISTIC ABOUT FULL PARTY BACKING.** This headline struck the writer as a strangely negative reaction from an experienced politician, and the lead paragraph justified the skepticism:

"NEW YORK (AP)—Senator Robert F. Kennedy (Dem. N. Y.) said today that, despite President Johnson's decision not to run for another four-year term, he does not think the Democratic party now is united behind him."

Doubting that the party is "now" united behind him is not quite the same thing as not being optimistic about future support. Once again the headline writer has carelessly or deliberately failed to notice the difference.

As a final point, there is a juggling of the semantic content of speeches and interviews in the handling of news in the printed media. There is a preponderance of quotation in reporting of all kinds. Sometimes the quotation is direct—sometimes it is indirectly para-

phrased in its entirety; and sometimes direct quotation and paraphrases are scrambled in the same sentence. The cautious reader raises his critical guard a little higher when the quotation marks begin to disappear, for it is at these points that slanting and distortion of what was really said most easily occur. Reading education should make it clear to students that the syntactical blending of direct and indirect quotation is always suspect, and students should be given ample opportunity to analyze the products of the editorial mixmaster in newspapers and magazines.

The writer has been arguing against excessive emphasis on literary works as the basis for a developmental reading program in favor of a more prominent role for the printed media of popular culture. This is not to say, however, that analysis of more sophisticated varieties of prose is not important. But when the teacher turns away from the front page, he does not have to go always to Joseph Conrad or Winston Churchill for his models. If he is interested, for instance, in the rhetorical device of repetition and the effect of introductory adverb phrases, he might turn from the Kennedy and Johnson stories to the syntax of James Reston of the *New York Times*, which appeared in the same issue:

"Instead of stepping up the bombing on Hanoi and Haiphong, he has limited it to the areas around the demilitarized zone. Instead of sending the 206,000 troops requested by Gen. William C. Westmoreland, the commander in Vietnam, he has approved an increase of only 24,500. Instead of following those who have said peace talks now were impossible and probably useless, he has made a new appeal to the enemy for peace and has even picked his negotiators."

Prose analysis will probably never be popular with the majority of students, but they will likely pursue it

with more interest if the material under study smacks of the vital world of James Reston rather than of the elegant yet remote world of many literary classics.

The spoken media

Finally, there is a virtually untapped source of dynamic prose which a descriptive reading program must exploit—namely, the spoken word of the electronic media, particularly radio and television. The cheapness and availability of tape recorders have made it possible for any teacher to capture the sounds of history, and much of this oral material, transferred to tape and then printed, can make a rich contribution to reading education.

As an example, recently the Liberal Party of Canada held a convention to elect a leader to replace Prime Minister Lester B. Pearson, who is retiring. Canadians are normally a phlegmatic bunch where politics are concerned, but this particular convention resulted in a tremendous surge of interest because of the sudden ascendancy of a young man named Pierre-Elliott Trudeau, who eventually won the leadership. The writer plugged in a tape recorder during the course of several major speeches at the convention, including one speech by Trudeau, and emerged with some sizeable blocks of prose representative of the living English language on the lips of people charged with the political, social, and economic future of students. Reflection on the syntactic and semantic content of some of this material, convinces one that the teacher of reading with energy, imagination—and a tape recorder—does not have to rely on the rhetoric of another generation. To illustrate, perhaps a brief excerpt from a speech of Canada's next Prime Minister will serve:

For many years I have been fighting for the right of reason, for the triumph of logic in politics over pas-

sion, for the protection of individual freedoms against collective tyranny, and for a just distribution of the national wealth. . . . For me, liberalism is the only philosophy for our times, because it does not try to conserve every tradition of the past, because it does not apply to new problems old doctrinaire solutions, because it is prepared to experiment and to innovate, and because it knows that the past is less important than the future. . . . An energetic country such as ours can become a model of the just society in which every citizen will enjoy his fundamental rights, in which two great linguistic communities and peoples of many cultures will live in harmony, and in which every individual will find fulfillment. For me, that is Canada.

With prose of this quality and currency to examine, a teacher of reading should not feel any need to rely excessively on the speeches of Burke, Lincoln, or Roosevelt for models. It is hoped that the American conventions will produce such splendid stuff; but whether they do or not, it is also hoped that many teachers of reading will have their tape recorders running.

Lest the writer appear faintly chauvinistic in his emphasis here, consider the late Senator Robert F. Kennedy's remarks on the sad occasion of the death of Martin Luther King. Kennedy said, "Violence breeds violence, repression breeds retaliation, and only a cleansing of our whole society can remove this sickness from our souls." That is elegant, yet dynamic, English prose and well worth the effort of recording and transcribing as material for analysis in the reading programs across the nation.

Conclusion

The descriptive approach to language places a greater responsibility on the teacher who is obliged to be-

come an observer and recorder of language in the world today. The methods he uses to teach students to read must reflect the actual demands of the contemporary culture. It is a dangerous mistake to become overly sentimental about the joys of leisure reading and the happy hours wiled away in the company of a good book. There are tough, nasty, greedy, ambitious people everywhere today; and unless the reading education offered by the public schools prepares students to cope with the propaganda of such people, students will leave school in no better shape than the rabbit who is reared in the safety of captivity and then released half grown in the harshness of the wilderness. Their fate, like that of the rabbit, is almost inevitable.

Critical Reading Techniques in Elementary School

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SOME YEARS AGO at a conference the theme of the meeting was "Reading as an Intellectual Activity." Ralph C. Preston had this to say about reading: "Children should be given to understand that reading is a tool for opening up the *world of ideas* and that point should be continued to be stressed throughout their formal education. The real miracle of reading lies less in the process than what can be accomplished through it in advancing knowledge, discrimination, love of nature and of the arts, spiritual sensitivity and reflection." In this broad definition of reading, Preston continued, "literacy is of value only if it stirs the intellect and forces the reader to reexamine and improve his thinking and his life in the light of it."

At this point certain questions can be raised, such as:

1. How can an elementary school teacher accomplish the aim of teaching children to read in the manner described by Preston?
2. Are there specific techniques for developing the skills of critical and creative reading?
3. What are the specific skills, and how do these fit into the reading program?

An understanding of the levels of reading is a first step in answering the question, "How can an elementary school teacher accomplish the aim of teaching children the power of reading?" David Russell presented the levels of reading as follows.

Four levels of reading

First level. This level is concerned with the association of printed words with their sounds. This decoding aspect of the reading process involves the association of the phoneme-grapheme relationship, or sound-letter relationship. This early decoding aspect of reading leads to the study of word analysis skills and the many skills of word recognition. At this level, the emphasis is simply on decoding without much attention to meaning. This stage has been called "barking at words."

Second level. This level is concerned with literal comprehension. Some of the skills at this level involve understanding the main idea of a paragraph, story, or poem. Other skills involve noting details and finding relevant details to answer specific questions. At this level, the reader understands the facts and learns to follow specific directions.

Third level. This level refers to the skills of critical comprehension. At this level, interpretation of what is read becomes the important factor. The reader goes beyond the literal comprehension of the facts or main idea to reading between the lines. The

reader may draw some conclusions, or may generalize and develop inferences on the basis of what is read. Additional skills at this level require the reader to begin to evaluate and analyze the reading passage by distinguishing between fact and opinion, to judge the accuracy of the source of information, and to sense the author's viewpoint and purpose.

Fourth level. This appreciative or depth level enables the reader to go beyond the thoughtful analysis of critical review to a more stirring experience. The "shock of recognition" can be felt by the reader as he recognizes a new or an important idea in the actions, characters, or values described. The development of fresh insights is possible as the feelings and ideas, expressed by the author are related to the personal experience of the reader. It is at this level that the reader could "improve his thinking and his life in the light" of his reading.

Techniques for developing critical reading

In answering the second question which concerns the techniques in developing critical reading skills, a close look at the "art of questioning" is essential. By asking *open-end* questions, the teacher can train her students to be active participants in the reading situation. The type of question asked by the teacher determines the response given by the student. For example, to have a discussion about the facts or details of a reading selection, such questions as—What? When? Where? and Who? will elicit factual responses. However, if ideas, concepts, and relationships are up for discussion, then questions such as How? Why? In what way? and For what reasons? will steer the discussion into the direction of critical thinking. Additional questions such as to what extent? Under what circumstances? will stimulate the student to use the technique of

inquiry as a tool which leads to the formation of judgments.

Through questions, the teacher can aid the child in the development of his curiosity and imagination. Questions that begin with What if? or What would you have done in a similar situation? will stimulate his imagination. Mary Austin describes the development of imagination this way: Teachers should help children to read in technicolor and with sound effects, thereby bringing their mental images sharply into focus.

Specific skills of critical reading

Some critical reading skills are involved in the following list and relate to level three in the levels of reading:

1. Draw conclusions
2. Predict outcomes
3. Draw inferences
4. Recognize cause and effect
5. Make comparisons
6. Distinguish between fact and fancy, relevant and irrelevant information, and similarities and differences
7. Judge skill of author in writing
8. Accept or reject author's facts
9. Understand need to suspend judgment until more information is known
10. Be willing to accept the ideas of the author if he is an expert
11. Be able to judge the bias of the author

Conclusion

Although critical reading skills represent but one aspect of reading, the following poem, taken from *Elementary English*, sums up the real purposes for teaching children to read:

To Give a Child a Book

To give a child a book is suddenly
To move a mountain from before
his eyes
And show a world he never knew
to be.

Then he will find new stars in his
old skies,
Roads going on which he had
thought to end,
Seas, and new continents about to
rise.

To give a child a book is like a
friend:

Opening, for the first time, a secret
door.

Which opens into others, without
end;

And he goes forth, still hungering
for more.

This poem sums up Preston's re-
mark, "Reading is a tool for opening
up the world of ideas."

Building Effective Comprehension Skills

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IN THE ATTEMPT to help pupils build skills in the area of comprehension, one must understand certain basic tenets. First, getting meaning from the printed page is the end product of the reading act. Children may be well informed with regard to phonetic generalizations, structural generalizations, and other word attack skills; but unless they can use these tools to secure meaning in the different areas of comprehension, the reading act will not be fulfilled. Second, comprehension is a global term which encompasses such abilities as reading for details, grasping the main idea, and differentiating between a fact and an opinion. Third, pupils develop an understanding of comprehension in light of the questions asked by the teacher. If the teacher asks only questions which involve details, the students will gain the impression that effective comprehension consists only of reading for details.

Fourth, materials used for constructing skills in this important area must be on the instructional reading level of the pupil. Students who are forced to read from a single text at a given readability level cannot hope to derive a satisfactory degree of understanding from the materials.

The relationship of certain factors to comprehension.

If one is to help children with comprehension skills, the relationship of certain factors to this body of skills must be understood.

Physical. Children must be rested, alert, and anxious to learn if an adequate meaning is to be derived. The tired, anxious pupil cannot be expected to remember details. The status of the emotional and physical health of every student must be studied by every teacher.

Mental. One must realize that the entire reading act is a mental process. While a high level of intelligence is a distinct advantage to the learner, it does not necessarily insure a high level of comprehension. A clear understanding of each child's level of intelligence must be established.

Background of experience. In order for words to have meaning, the reader must be able to attach some kind of meaning to the words which are read. A child cannot fully comprehend the meaning of the word "hydrant" unless he has seen a picture of the object or the actual object itself. The culturally disadvantaged child is apt to be particularly deficient in this area. To compensate for the lack of actual experience with objects and ideas, the teacher of these pupils must use such tools and techniques as films, trips, films, and field trips.

Word recognition. A prime prerequisite for building effective comprehension skills is a basic understanding of such word perception skills as phonetic analysis, structural analysis, and

context clues. One cannot derive the exact meaning of phrases and sentences unless each word can be pronounced. There is little justification for beginning a sophisticated program in the various area of comprehension until word recognition limitations have been corrected.

Purpose of the reader. To gain a complete understanding of a given selection, the pupil must be given a purpose for reading. The use of a reading-study formula such as SQ3R will be of invaluable aid in helping a child secure intended meaning from a paragraph or chapter.

The comprehension skill strands

As indicated in the opening section, comprehension must be thought of as a combination of several facets. Direct and sequential training must be given in each of these areas if the student is to be equipped to gain meaning from many different types of material. Each of these aspects is described in the following section.

Reading for details. An essential aspect of total proficiency in reading at all age and grade levels is the ability to secure details from many different kinds of reading materials. The steps involved in completing an experiment or an income tax form will necessarily be a relatively slow analytical process which requires careful attention on the part of the reader.

Reading to secure main ideas. Pupils at all educational levels are frequently asked to read a selection at a fairly rapid rate to secure one main concept or idea. This skill calls for discriminatory reading in which the reader attempts to place a number of small details into a main idea. Practice should be given using paragraphs, chapters, and complete books as the skill is developed.

Reading to differentiate between fact and opinion. One of the most neglected and yet one of the most impor-

tant skill strands is that of reading to decide if a given statement is a fact or an opinion. Pupils should be taught as early as the first grade that a statement may be fanciful or it may be factual. Older pupils must be taught to analyze copyright dates, different versions of stories, and the qualifications of authors. The attitude of the teacher is important in the development of the skill. The teacher who leads the pupil to believe that a given statement is absolutely true because it is in the textbook is doing little to develop skill in the important area of critical thinking and critical reading.

Reading to follow directions. This skill must be developed adequately at every age level. Everyone is called upon daily to follow directions such as obeying a traffic sign, constructing a do-it-yourself furniture item, or completing an income tax form. Pupils should be trained in listening skills in order that verbal directions may be followed more explicitly. Numerous opportunities should be given for them to read written directions. They should understand that there is a purpose for all directions and that the teacher will not tolerate a "nearly" correct response.

Reading maps, graphs, and charts. The skill of interpreting maps, graphs, and charts is frequently taken for granted. These skills must be taught in a sequential manner at all grade levels. These aids serve the important purpose of conveying meaningful information in a short amount of space. The pupil who fails to interpret these items misses much of the story or article and does not have a clear understanding of the total body of concepts which are presented.

Reading to predict outcomes. The ability to predict outcomes is contingent upon the reader's ability to grasp details, his background of experience, and his ability to display a reasonable attention span. Active anticipation on the part of the reader leads him to de-

velop a desire for the complete meaning to be derived from a given selection.

Reading to follow the writer's plan and intent. Since authors have unique plans for presenting a body of information, a very careful study of the writer's organizational pattern must be made. While most reading material usually contains a brief introduction, a body, and a summary of the total presentation, some writers choose other methods of compiling information. A careful analysis of the total plan will help the reader to assimilate the intended meanings.

Reading to summarize and organize. An efficient reader organizes and summarizes material in order to see the relationships among the various details presented in a selection. In a few instances, the summary may be the establishment of a mental concept in which the pupil summarizes a number of brief facts into a meaningful mind-set regarding a given topic. Summaries will more often take a written form in which the reader wishes to preserve certain ideas for use on later occasions.

Principles to follow in teaching comprehension skills

Remember that comprehension is a global term which encompasses more than just reading for details and parrotting them back to the teacher.

The sequential teaching and reteaching of all comprehension skills are vital. Pupils do not learn to comprehend by osmosis or because they are efficient word callers. A careful formulation of reading objectives which will insure steady growth in all areas of comprehension must be undertaken.

If comprehension skills are to be adequately developed, the reading materials must be at the child's instructional level. Materials which are too difficult frustrate the reader while materials which are too easy fail to chal-

lenge the child. If the child can comprehend at least 75 percent of the silent reading material and can pronounce at least 95 percent of the words orally, one might make the judgment that a given selection is at the instructional level. A more formal analysis of any given material can be made through the use of readability formulas which have been constructed by Flesch, Dale-Chall, and others.

Reading purposes must be developed with pupils in order for satisfactory meaning to be derived. Before reading, the purpose must be established whether the reading is to be done to gain details, main ideas, or a significant generalization. Teachers are guilty of contributing to ineffective comprehension by asking pupils to "read chapter 5 for tomorrow" with additional comments. The importance of establishing questions which form a purpose for reading cannot be overstressed. As pointed out in another part of this presentation, students must be made to understand that effective comprehension consists of more than the mere recall of selected details. Teachers should give instruction and practice in all of the comprehension skill-strand areas.

Pupils must be taught that writers have many different styles of writing, and pupils must determine whether the topics are written from a subjective, fictional, or factual point of view. The reader must decide very early in the exercise what kinds, if any, of information he is seeking and what methods and procedures should be employed. For example, if he decides that the article is of a controversial nature, he should apply critical reading techniques and compare the statements of the material in question with pronouncements found in other sources which have been written in the same subject area.

Steps for building effective comprehension skills in all subject areas

Well-developed, sequential lessons must be planned and executed in all content areas if a high level of comprehension is to be realized. The following steps must be implemented if this objective is constructed properly:

First, the teacher must build readiness for the selection which is to be assigned. During the period, a discussion with the pupils should be held at which time each of them would recall any experiences which he has had regarding the topic. Difficult words, phrases, and concepts should be introduced and explained. Guiding questions by the teacher and the pupils should be compiled with additional questions selected from the textbook or workbook. Many different kinds of books besides the textbook should be available in order to care for the wide range of reading levels which are typically present in a heterogeneous classroom.

Second, the period for silent reading must be scheduled. Observation should be undertaken to locate pupils who have improper silent reading habits such as finger pointing, lip movement, and subvocalization.

Third, a general discussion of the study topic should be undertaken in light of the guiding questions which were established during the readiness period. In some cases oral rereading of certain passages of the selection may be appropriate to clarify and substantiate certain ideas and concepts.

Fourth, meaningful culminating activities in such areas as social studies and science might serve to clinch essential principles which are explained in the written material. A time line might be constructed by the pupils after they have read various selections on the topic "Important Events in

American History." The use of audio-visual aids, such as films and filmstrips, may also serve to reinforce important facts.

Evaluation of comprehension skills

A knowledge of each pupil's strengths and limitations in the area of comprehension must be established on a continuing basis. The use of a subjective reading inventory or some other informal device may lend valuable information in this important area. Several commercial tests such as the California Achievement Test, Iowa Test of Basic Skills, Diagnostic Reading Scales, Durrell Analysis of Reading Difficulties, or the Gates-McKillop Reading Diagnostic Test may be used profitably in the evaluation procedures. A careful observation should also be made of the reader's oral responses to various types of questions. The instructional program should be based on the demonstrated needs of the pupils as revealed by the results of these tools and techniques.

Summary

Getting meaning from the printed pages is the end product of the reading act. Comprehension is a global term and is composed of many different facts. If comprehension skills are to be developed properly, every teacher must construct lesson plans which will insure that ability in this important area is developed in a sequential manner. Establishing readiness for a given topic, scheduling a silent reading period, discussing the topic, and developing appropriate culminating activities will help each pupil understand intended meanings in a given subject area. Various evaluation procedures should be employed to help the teaching structure the proper instructional program in comprehension.

Developing Comprehension Skills Through Nonverbal Symbols

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READING AUTHORITIES concur that "all the research in the psychology of learning becomes a part of the psychology of reading" (7). One tests IQ in bifactors of verbal and nonverbal acuity, recognizing that some are more facile in one area of learning and thinking than in another. Research with the culturally disadvantaged indicates they generally score higher in nonverbal areas, as do those with a mathematical or scientific bent and as do boys to a greater extent than girls. Why not capitalize on this nonverbal area and include the use of symbols to represent thought process patterns for comprehension skills?

Using nonverbal symbols in an integrated approach

To attain its potential value, nonverbal symbols should be integrated in the total approach, not simply offered as helpful but sporadic adjuncts. Interwoven with the verbal, oral and written, they become an integral and consistent part of procedure and method, embellishing the verbally oriented and more effectively reaching the nonverbally oriented—a form of insurance. They act as catalytic agents in conceptualizing.

Insight, readiness, and transfer are combined while symbols are initially introduced. When first presented, some symbols are in full detail and colored. Symbols are interwoven with the review of the verbal printed page from an easy readiness basal and with related corollaries, the oral-verbal. These culminate in an insight-building procedure towards the concept of a comprehension skill as a single thought pattern for the process which can be

symbolized. Detailed symbols are reduced to elementary tag lines—simplified versions of the detailed symbols for more handy reference and recall. As students evaluate within the three phases of the course, they may do so either by verbal terms or nonverbal symbols. Complications for maturity of a skill are noted within the basic thought pattern.

Included in evaluative techniques for self-discovery of need is a hierarchy of attitude and attack that encompasses feelings and ways of working and reading which can preempt or negate effective application of a thought process pattern. Some aspects of attitude and attack within the hierarchy can also be symbolized.

Students and courses which can benefit from this approach

There should be transferable aspects from this integrated approach within and without formal educational structures—secondary, college, adult education, job corps. So long as a student is near or above an 80 IQ and fifth grade comprehension, he can benefit. All learner categories, slow through superior, progressed above anticipation as projected from C.A.T. figures, according to statistics for the school years 1962-1965 which involved 175 heterogeneously grouped students. It appeared to be particularly beneficial for culturally disadvantaged minorities.

During 1962-1965, about 25 students of varying abilities and cultures were heterogeneously grouped per class in a year's course of developmental reading, eighth grade, at Central Junior High School, Ogden, Utah. Entering language IQ, C.T.M.M., was a low average mean of 96 with extremes of 65-126. Entering C.A.T. mean for reading comprehension was 7.2 grade with extremes of 3.7-11.0 grades for these eighth graders. Mean growth was 1.8 years for all students. Indicative of what may be possible are

the following, all of which refer to reading comprehension: 1) about 18 percent entered below sixth grade but only three percent so concluded; 2) less than 4 percent entered at tenth grade or above, but 21 percent concluded eleventh grade or above; 3) although 3 percent remained static or retrogressed, 13 percent progressed three years or more.

To provide for more students, the eighth grade year course was subsequently reduced to a half-year one; cursory statistics indicate commensurate growth about 1.6 mean year's progress. A completely individualized and sequentialized ninth grade course has been added. Growth eighth through ninth indicates about 3.0 mean years or above.

Precepts founding method and procedure

If the following precepts from recognized authorities are accepted, other psychological aspects fall naturally into perspective for organizing method and procedures:

1. Comprehension in reading is akin to the thought process itself (9).

2. Skills involved in reading comprehension are essentially the same for grades two through twelve, although maturity in use becomes increasingly more complex (1).

3. Learning through insight is particularly conducive to transfer and resistant to forgetting; a series of small partial insights can also aid this goal—the sudden feeling that now one really understands (4).

4. Failure is almost certain when unreadiness is severe (6).

5. Poor readers fear failure and peer competition, and lack self-confidence and esteem (3).

There is a realistic two-step hierarchy that precedes the third step for applying universal comprehension thought patterns. How a student feels about working—his attitude—can ne-

gate proper attack even if he has no severe attack problems. How a student attacks words and working procedure can preempt effective application of thinking potential from the printed page. Most work habit problems due to attitude that can preempt attack and application cluster around poor concentration. Those who are rigid in approach also have attitude problems. Likewise, if a student has problems or deficiencies in the way he attacks words or procedures for work, he similarly may preempt himself from effective application for comprehension: general word attack deficiencies—phonics, syllables, accents; a generally weak vocabulary; and problems of poor procedure.

Hierarchy steps are the following: 1) attitude or feelings; 2) attack or ways of reading and working for words and procedures; 3) application of thinking power per potential towards comprehension thought patterns.

Aspects of this hierarchy are incorporated during initial insighting and review of comprehension skills. They are specifically located for or by the student in his evaluative techniques.

Methods, procedures, and grading in phase one

Frandsen speaks of patterns in a continuum to guide learning: "... explicit, systematic teacher direction at one extreme, teacher guidance of pupils' self-discovery learning in the center, and self-guided learning at the other extreme" (2). Briefly, this sums up the triphasic procedure employed, with kaleidoscopic shading for self-discovery.

The first phase uses an easy level basal for explicit, systematic skill introduction to all students as a group, during which concepts of thought processes for universally applicable comprehension skills are achieved through insight, verbally and nonverbally. Rec-

ognizing skill thought patterns, their symbols, and how they can be transferred to various levels of maturity and subject matter are paramount, not the time spent per page or number of pages covered. Hierarchic problems of attitude and attack become a part of evaluative techniques. To aid future insight and personalized evaluations, no prior prompting is offered to the class group when exercises are first assigned. If a student wants help, the teacher asks leading questions which guide him to his own solutions. Evaluation is required for any exercise or major portion thereof that falls below an "A" grade, assuring that students will attempt discovery of needs or obtain assistance in doing so. During review of skill exercises, as they are being insighted and symbolized, the teacher also points out hierarchic pre-emptions, either from the printed page or from students as observed. Eventually, the entire procedure evolves, gathering momentum as it proceeds.

Orally expressed corollaries use peer interest, readiness language of common environment or experience, and are induced from and with the class in an interwoven, integrated procedure towards individual insight. Insight-type thinking by students during Phase One is immediately reward-reinforced by a "red A." Teacher arranges build-up and questions so that each student earns at least one such "red A" during Phase One. Hope is re-established for some when they realize they are capable of higher thinking processes. Peer competition and feelings of failure are lessened by grading methods: a "no F" principle so long as the student tries. Evaluation implies learning, therefore no "F." The overall quality of evaluations, not grade per page, is a main criteria for report card grades, as are effort and relative progress. High evaluative quality and pre-

cise self-discovery are sincerely complimented.

For Phase One purposes, choose only a few carefully selected exercises, insight-inducing ones, which correlate well for symbolizing and hierarchic implications. These form an overview of major word attack and comprehension skills. During 1962-1965, portions of the Scott, Foresman *Basic Reading Skills for Junior High School* (3) were used for this purpose. It is an easy level, cumulative review workbook. Incisive pages for insighting were included in two sections, "Summarizing and Organizing" plus "Reference Materials," and twenty-five special pages for phonics and other skills.

It is imperative to allow enough time during Phase One to accomplish primary goals.

Phases two and three

When Central Junior High moved to a sequentialed ninth grade course, the eighth grade course was cut from a year to a semester. Phase Two has been condensed in this semester course, but Phases One and Three remain primarily the same. Main condensation involves lesser time on series of small partial insights utilizing, varileveled workbooks in flexible subgroups; these aspects are, however, included in the almost completely individualized ninth grade course. Series of partial insights continue to be concurrently linked during this semester course with strengthening areas of weakness noted from the student's entering analysis. To do this, remaining portions of the Scott, Foresman's easy level basal are sectioned according to each student's needs as evidenced from this analysis, plus relevant supplementary material if necessary. During Phase Two students progress towards independence in self-guiding their learning. Evaluations are now expressed either by symbol tag or verbal term, whichever is more comfortable.

Phase Three is completely individualized, with emphasis on evaluative procedures for self-discovery, insight, and transfer to self-guided learning. The student progresses in near catapult fashion using multileveled materials of wide spread as he moves towards and elevates his maturation peak. When complications arise in maturation, private student-teacher conferences are arranged. The student brings one or more selections whose evaluations he cannot determine. Together they discover his need. If within step one of hierarchy, confidence is restored in ability to think effectively. If within step two, specifics are pointed out and/or provisions made to solve or upgrade them. If within step three, intricacies at higher levels are noted within the universal thought pattern as symbolized for that skill.

Multilevel materials during 1962-1965 utilized a laboratory kit with a third through twelfth grade spread, the S.R.A. kit IIIa (5).

Symbols for attitude in step one of hierarchy

Symbols in step one need not be colored, detailed, or reduced.

To determine a student's attitude towards working or reading, devise assignments early in Phase One with varying time limits—a few minutes to several class periods. Observe dawdlers, disturbers, the easily distracted, the careless or over-hurrying ones. During the review of exercises for insighting, interweave how such poor work habits—stemming from attitude—can preempt effective thinking. Since most problems here concern concentrating, one set of symbol tags will suffice. Compare the mind to a hand: concentrating uses all fingers of the mind for full power but poor concentrating uses only some of the fingers. Draw a hand with all fingers open for concentrating. Follow this with a

sample of a radio news broadcast being interrupted by beeps of static. Draw a straight line for flow of concentration; superimpose erratic up and down lines over it to represent mental static interrupting the flow. Use terms "mental static" or "you're staticing" as future occasions warrant.

Students who begin school with meager vocabularies or percept-concept classifications become so bombarded with the influx of words and ideas that they sometimes establish a rigid approach to working in the school environment. If one approach does not work, they may not try others. Such rigidity may be observed in students from disadvantaged or foreign-language-speaking homes. Discuss this attitude frankly but kindly; offer hope that attitude patterns can be altered; elucidate alternate approaches as they insightfully occur. Use two vertical lines to represent rigidity of a stick; superimpose alternate lines in curves, as of a flexible rubber band.

Symbols for attack in step two of hierarchy

Symbols as first presented again serve as tags. General phonics are not symbolized. However, portions of words are referred to in a separate chart, "How to Read Hard Words." This approach emphasizes starting from any known part, as in doing a jigsaw puzzle.

Following directions, a crucial evaluative factor, is not symbolized but referred to by term. Key words are symbolized. Such key words, parts of words, or phrases to follow directions better are precisely pointed out in Phase One during insighting and review of exercises by using an overhead projector. Students circle key expressions on their workbook pages. Clues to singular or plural answers being needed are found in suffixes or overlooked "a's," "the's," "or's," and dashes. Tricky antecedent phrases for

pronouns and other terms are located. Percent-type words, elucidated from students for "red A's," are categorized on corresponding ranges of a yardstick held by the teacher. Such would be "all," "none," "almost all," "never," "rarely," "frequently," and "infrequently." Drawing a key tags "key words" in directions or elsewhere.

Samples for how to proceed on ensuing exercises for any subject are a part of the total directional picture. Studying samples is not symbolized but referred to by term. However, following directions and studying samples go together for surveying the whole, a part of SQ3R. Surveying the whole to include directions and samples is a simplified road map, divergent but connecting lines set in a square. This tag may be termed "getting a mental road map."

The total SQ3R procedure is compared to the relative strength of a single post for "reading" only—versus bracing that post before and after—the "survey-question" for *before* brace and "review-recite" for *after* brace.

Symbols for application of thinking patterns in step three of hierarchy: comprehension skills

Many symbols here are first presented in color and full detail but reduced later for tagging. Some skills for symbols evolve in groups; other are lumped together if pattern is similar; a couple have more than one symbol if alternate patterns apply. Those with complicated or vague terminology are restated in simple, concrete terms. An occasional one may not be stated in previous lists of skills. The number of symbols is kept moderately short to encourage recall, rather than swamp the student with a lengthy list which would defeat its purpose.

How to organize and outline for ideas—seeing major and minor points—and generalizing for a most inclusive answer are grouped and introduced

early. During review time, but before checking completed workbook pages for these skills, insighting is motivated with numerous "red A's" as students respond to leading questions. "How can the earth be divided into only two parts?" "Red A's" include answers as "land and water," "northern and southern hemisphere," "organic and inorganic." These clarify how to organize for main ideas and that there is more than one way of doing so. Minor ideas of a most inclusive nature could be the continents under "land," oceans and seas under "water." These evolve down to the student in his seat and up to the universe. Transfer to the human body results in a tricolored (later a reduced black-and-white) stick figure as symbol for organizing and outlining per main or major ideas: head, trunk, limbs. The head is then separately symbolized to represent minor ideas under major—head being major and eyes, ears, nose, and mouth being minor ideas under major. Next to the head symbol is placed another symbol using a yardstick with a bracket from top to bottom. Bracketed yardstick represents any most-inclusive idea—as term "mouth" is for teeth, gums, tongue. Disjointed organizing is compared to toes sticking out of a head. Entire group is interwoven with checking workbook answers and surveying subject matter texts.

Relating ideas is grouped with making judgments and drawing conclusions. Circles of different colors for different ideas are themselves arranged circularly, with another circle in the center as the hub. How to relate them is symbolized by drawing connecting arrows and tagged later by two circles being connected with one arrow. Confused thinking for relating ideas is compared to the varicolored circles having squiggles going from them in confused, erratic fashion.

Making judgments uses a scale. Colored weights of different size stand

for relative weight of ideas. Students decide the size of weights and where each weight should go. Tipping of the scale from these weights is determined by the students during simulated situations of emotional peer interest: whether to buy a car now, drop out of school soon, or go steady. Tag is a slanted line with a vertical one from its midpoint; two boxes of dissimilar size rest on ends of the slanted line, the larger being on tipped-down side.

Drawing conclusions evolves from making judgments. Original symbol is four varicolored strands tied at one end into a single, cohesive knot. Tag is uncolored replica.

Implied ideas, inference, is joined with how to analyze or think deeply. Tag had been an iceberg with 9/10ths below water's surface. To bring this skill pattern closer to students' environment, the symbol has been changed to a tree whose roots beneath the ground are the unstated or implied ideas.

Emotional reaction may be untagged, but a single arrow penetrating a curved line is sometimes used, along with the term "get inside his skin." This term with appropriate interpretive variations can be applied to characters, mood, or author's purpose.

A chain of cause and effect is a series of four linked circles with shading between links. Underneath the links are numbers one through four. Numbers represent sequence or time order as it pertains to cause and effect. How these operate concurrently is discussed with current and past events, as Hitler's successive takeovers from the Rhineland to Austria to Poland to World War 2. Particularly insightful is the comparison of two teenagers reacting to a similar home situation. A father's becoming seriously ill results in a mother's going to work, an act which results in the eldest's assuming home and childcare duties. One younger rebels, kicking at life, playing

truant, being surly. Another develops character and cooperates pleasantly, planning his time efficiently. These also demonstrate alternate reactions for effects in the fourth link.

The act of comparing and contrasting uses triangles, circles, squares, and oblongs of various colors and shades of color. To see likenesses and differences one must observe variations of shades, colors, and forms. Also, compare and contrast students. Tags are three triangles for comparing and are a circle, square, and triangle for contrasting.

How to use a process of elimination is likened to qualifying for the school football team. The tag is a stick figure kicking a football.

How to use context, vocabulary needs in maturation, plus shades and degrees of meaning are grouped. How context operates is insighted by telling a short story using an unknown word among known words. Thus, "rupee" in a story of India ties context of Indian money with reward. Each student who whispers correct contextual use in the teacher's ear gets a "red A." The tag is one question mark among several dashes. The tag for vocabulary needs in maturation is many question marks among a few dashes.

Shades of meaning is closely related to contextual meaning. Different primary colors represent different homonyms as different dictionary entries. Shades of a primary color, from pale pink to deep wine, represent shades of meaning for the same entry word. Thus, there can be ten shades of meaning from pink through deep wine for the main idea of "course" as a "pathway." Shades for "course" as "rough" would be within a blue primary color. Original symbolizing includes the three primaries with several shades in each. Tag is three blocks with the words "pink," "red," and "wine."

Degrees of meaning would be from

"pretty" to "gorgeous" to "absolutely devastating." Tag is a thermometer with exclamation marks at the top.

How to choose a best answer from several possible good ones is not generally included in a list of skills, although it acts as such. Think of a child's peg set with one hole unfilled—that hole being a circle. Square, triangle, oblong, and round pegs are available. The oblong won't fit at all; the square or triangle can be hammered in; the round peg fits best. Tag is a square pushed into a circle and termed "choose a best fit." An alternate tag refers to the local game of skeeball where one tosses a ball towards several open rings. Center ring scores 50 points; next scores 40; outer scores 10 and gutter area doesn't score. Discuss that in school, unfortunately, only center score usually counts. Tag is three circles with 50, 40, and 10 inside the circles and a bottom line for gutter area, no score. Last symbol is a tag of a circle with an arrow's point in the exact center "hitting the bull's eye" as for skim-reviewing to pinpoint an exact answer.

Motto for all step three is "Develop Speed Plus Comprehension!" Demonstrate how speed and comprehension correlate. Read aloud in jerky fashion, showing how mouthing and pointing words in silent chopped cause them to come out "all chopped up for ideas—like hamburger." Then read aloud in swoops of increasing size to demonstrate how to build speed for ideas—from small phrase swoops to clause swoops. Tag has two parts: dots for chopped-up hamburger reading; and three sets of swoops for building speed—top set has four small swoops, middle has two, medium-sized swoops, bottom has one large swoop. "Read for Ideas!" is the motto of the entire hierarchy.

Conclusion

As students become increasingly

adept at applying nonverbal symbol thinking to supplement verbal thinking, as they become experienced in seeking and using insight—aware of its merits—, and as they practice transfer and self-discovery methods, many blossom. Grades, citizenship, and attendance improve. Sights are raised; self-images, altered. Youths visit from high school and college to tell of continuing progress.

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Questioning Strategies of Elementary Teachers in Relation to Comprehension

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"BUT HOW do you teach children to comprehend what they read?" echoes the question. "By asking them ques-

tions that cause them to understand and think about what they (the students) are reading," responds the reading teacher.

That teachers do ask questions, many questions, is a well documented fact. (1, 2, 3). How such questions contribute to the child's subsequent ability, or abilities, to comprehend reading passages remains the unknown because it is not easy to infer in cause-and-effect fashion that certain questions result in certain student outcomes. Lest the title of this paper should suggest the presence of such data, it is important to immediately indicate possession of no information of this kind.

Rather, the study being reported was an attempt to fill some knowledge voids about what transpires when teachers question students about reading. It seems imperative that a description of what happens must necessarily precede a prescription of what should happen with regard to teacher-questioning strategies. Conceivably, the reader may join the researcher in the activity of posing interesting hypotheses and questions about the potential relationships between certain questioning strategies and subsequent student comprehension skills.

Questioning strategies

The words "questioning strategies" suggest carefully planned questioning tactics such as those employed by certain basal series manuals wherein one may observe the plan to develop certain skills. As such, the word "planned" takes on great importance. Because it was not readily possible to determine to what extent, if any, the teachers planned their guided reading questioning, it became useful to refer to the observed questioning behaviors as "patterns" rather than strategies.

Initially, many reading lessons were taped and analyzed in an effort to determine what was going on during the

guided reading segment that might provide insights into teachers' questioning behaviors and subsequent student comprehension of story material. Emerging from this investigation were the following concerns: 1) the kinds of thinking that teachers' questions are stimulating; 2) the ways in which teachers control student response to given questions; and 3) the ways in which teachers tend to relate one question to another.

These three large concerns [see also (3, 4)] were subsequently patterned into the three subtopics of Kinds of Children's Thinking, Actions that Follow Teachers' Questions, and Relating Questions.

Kinds of children's thinking

Teachers obviously design different kinds of questions to tap different kinds of thinking skills about reading. Because some diversity exists in the nomenclature relative to such skills, the following instrument was designed to describe the kinds of thinking stimulated by teachers' questions.

Recognition. These questions call upon the students to utilize their literal comprehension skills in the task of locating information from reading context. Frequently, such questions are employed in the guided reading portion of a story, i.e., "Find the sentence that tells how the dog escaped."

Recall. Recall questions call for students to demonstrate comprehension by the recall of materials previously read. Such activity is primarily concerned with the retrieval of small pieces of factual material although the activity can vary greatly in difficulty. Recall, like recognition, represents a literal comprehension task. An example of a recall question would be the following where the answer to the question is clearly printed in the text, i.e., "What color was Jack's car?"

Translation. Translation questions require the student to render an objec-

five, part for part rendering of a communication. As such the behavior is characterized by literal understandings in that the translator does not have to discover intricate relationships, implications, or subtle meanings.

Conjecture. These questions call for a "cognitive leap" on the part of the student as to what will happen or what might happen. As such, the conjecture is an anticipatory thought and not a rationale, i.e., "Do you think he will win the race?" (Answer not known at time of question and response.)

Explanation. Explanation questions call upon the students to provide a rationale such as the *why* or *how* of a situation. The rationale must be inferred by the student from the context developed or go beyond it if the situation is data poor in terms of providing a rationale. Examples of explanatory responses are substantiation of claims, i.e., "Explain why you think John was the best"; explanations of value positions, i.e., "Why do you think this is the best story we have read?"; conclusions, i.e., "What can you conclude as the reason for Bill's failure?"; main ideas, i.e., "What is the main idea of this story?"; and others.

Evaluation. Evaluation questions deal with matters of value rather than matters of fact or inference and are thus characterized by their judgmental quality (worth, acceptability, probability).

When the instrument was applied to the questions of twelve randomly selected second, fourth, and sixth grade teachers, it was found that these teachers called most frequently for recall

types of thinking. Table 1 reveals the relative frequencies and percentages of thinking outcomes called for by the study teachers.

More detailed analyses of the kinds of questions asked by teachers in the various grades as well as in the various reading groups (high, middle, and low) can be obtained elsewhere (3). What seems to be important here is the strong suggestion that the patterns of these teachers placed overwhelming emphasis upon the literal aspects of reading comprehension. Whether such is good, bad, or indifferent must be largely a values question or must call for more information about the relationship of the questions to the content.

Chall (2) in an analysis of the frequency of questions in basal series manuals, strongly suggests that many questions may be quite unnecessary for comprehension stimulation. In light of this criticism, it is imperative that analysis should be made to determine such things as the following: 1) the concept loads of various stories and optimum questions for drawing upon these; 2) the appropriacy of recalling certain facts or happenings; and 3) segments of content that are particularly valuable as inference stimulators.

Teachers might be better prepared for the guided reading task if they would pose questions such as the following in advance of their meetings with groups:

1. What kinds of reading thinking skills can be developed in this content?
2. In terms of this group's skills (or better yet, individual's),

TABLE 1
FREQUENCIES AND PERCENTAGES OF SIX THINKING TYPES
CALLED FOR BY TEACHER QUESTIONS

Recognition		Recall		Translation		Conjecture		Explanation		Evaluation	
f	%	f	%	f	%	f	%	f	%	f	%
13.5		1056	56.9	12	.6	120	6.5	133	7.2	284	15.3

how should I budget the question types?

3. In terms of this group's skills, how relevant do the basal reader questions seem?

Actions that follow teachers' questions

In his "inquisitor" role the reading teacher has the opportunity to both formulate the question and, to some extent, control its destiny in the subsequent interaction.

One might assume that every question was designed to elicit a prompt and accurate response. Although the designers may desire such an end for their questions, it is apparent that many other things can happen. It would appear that the role played by the teacher immediately following the question launching may have a very vital effect upon the students' comprehension. As examples of such, the following are offered: The Immediate Right Answer, No Answer Permitted, No Answer Received, and Extending Answers.

The immediate right answer

Teachers receive immediate right answers approximately 57 percent of the time according to this study, a fact which indicates that teachers generally design questions that take hold immediately. As might be anticipated, these questions are most frequently the simple recall variety such as the following:

Teacher: Who answered the door, Arthur?

Arthur: Dick.

No answer permitted

At times it is impossible to note whether the student attained the desired thinking level because of the intervention of the teacher answering his own question, such as the following:

Teacher: How do you know Jim was there (at door)? (No response allowed)

Teacher: The doorbell! It rang.

While it is acceptable for individuals to answer their own questions on occasions, it seems imperative to determine how often the occasions occur and what the effect is upon those who are supposed to respond (at least they think they are).

Whereas the teacher in the first example didn't appear to go further with the question, note the actions of another teacher in the following exchange:

Teacher: What about the others? (No response allowed)

Teacher: What about the mother, dad, and four brothers? (Still no response allowed)

Teacher: What were they thinking?

Student: They were thinking, "There goes another colt."

Obviously, this represents some difficulty in phrasing the desired question. Hopefully, the students will hang on and put it all together into a coherent question that they can answer.

No answer or wrong answer

Everyone has experienced the situation wherein a question will be greeted by a noisy silence or by a totally incorrect response. Note how the teacher's actions might be characterized by one of the following:

1. The teacher answers the question herself.
2. The teacher clarifies the question and tries again (keeping the same question open).
3. The teacher offers additional cues in hope of getting the desired response.

In the "clarifying" situation the teacher works as in the previous example on the idea that the question must not be understood. What is important is the fact that the teacher is not adding any information as the teacher in the preceding example who kept add-

ing more to the initial question. Rather, he is clarifying language, etc.

Obviously some questions are too loose, and the teacher feels compelled to further cue what she is after. Note the efforts of the following teacher:

Teacher: How was the word "jumping" used in the story? (Followed by silence and blank looks)

Teacher: What was jumping? (Continuing silence)

Teacher: What jumped? (Silence)

Teacher: Who jumped?

Student: Dick.

Sometimes the teacher's additional cueing will reduce the answer possibilities to a good-guess possibility. To illustrate, consider the following extension of the previous questioning, assuming that the student had not answered:

Teacher: Now who jumped, Dick or Mary?

Student: Mary.

Teacher: Who?

Class: Dick (said with much gusto).

Extended answers

"Extending" refers to the means wherein the teacher keeps the question open in order that he a) may get a more complete and, consequently, accurate answer and b) may provide several children with opportunities to project answers to a given question (normally a conjectural or explanatory question that may have unlimited answer possibilities).

Illustrative of the effort to get a more complete answer is the following sequence:

Teacher: What did she mean by, "If you will, please?"

Student: If you would.

Teacher: If you would what?

Student: Answer the door.

Although very rare according to the research, some situations are provided by teachers' questions wherein various students can respond to the same ques-

tion. Illustrative of one such sequence is the following:

Teacher: O.K., could you think of a good headline? (for the story just read)?

Student: Kitty and the Horses.

Student: A Girl with too Many Brothers.

Student: Kitty Gets the Colt.

Student: Kitty Saves the Colt.

In pointing out characteristic patterns of teacher-questioning activities the intent has not been to demean or criticize such patterns. Rather, the concern is that teachers should be aware of such characteristics in order to develop and use questions to develop optimum thinking by students. Hopefully, teachers will tape record and analyze their questioning sessions to determine such things as the following:

1. Do my literal comprehension questions clearly spell out the nature of the response for the student?
2. Are too many of my literal comprehension questions answered instantly, thus indicating the possibility of an unchallenging question?
3. Do I really provide students with opportunities to do the thinking, or do I step in too quickly with my desired answer?
4. When I seek to clarify a question, do I clarify it or answer it?
5. Do I provide enough time and enough proper cues to stimulate extended answers to questions that have many answers?

Relating questions

Conceivably, there are endless ways in which one might view the relationships of questions. For instance, one might state that questions are related in that 1) they all pertain to a common event; 2) they sample sequential elements from an experience; and 3) they are related by kind (as indicated

by the kinds of thinking in the first part of this article).

Rather than viewing these relationships, the current study sought to determine how questions might cluster, one to another, to relate the thinking of two or more such questions. The results of observation revealed four rather clear question combinations, operating in teacher's questioning strategies. Descriptions of these combinations, known as question clusters, follow:

A. *Setting Purpose--Followup.* This type of cluster would result when a teacher would follow up a "setting purpose" question [S(O)] with a parallel question calling for a response. In other words, the teacher would ask the first question as a guide for the students and then would repeat the question in a manner that would call for response.

B. *Verification.* Verification clusters involve questions wherein congruence can be verified by referring to the text. As such, it is the reverse of the previous cluster. In verification episodes, the teacher follows up a student's response with a question that calls for the verification or finding of the referent for the response to the previous question.

C. *Justification.* This type of cluster appears when a teacher calls upon a student to justify his own or somebody else's previous response by the use of explanation. This explanation most frequently follows a judgmental or conjectural response to a previous

question.

D. *Judgmental.* This cluster type refers to situations wherein a teacher will ask for an evaluation of the student response to the preceding question. Thus, judgmental clusters constitute a reversal of the order employed in the justification clusters.

Teachers' uses of question-clustering strategies are revealed in Table 2. In viewing the table it should be recalled that the total of 142 indicates that 284 of the 1857 questions studied were clustered.

It is evident from the table that the SP-Followup strategy was the most prominent effort at clustering. This strategy derives directly from basal readers wherein teachers are directed to establish definite purposes in advance of students' reading.

Although the tabular data produced here do not reveal it, other data indicated that the teachers did not use this strategy as much as the basal suggested. Especially noticeable was the relatively infrequent use of such a strategy by the second grade teachers who normally employ the strategy on a page or every-other-page basis.

Verification clusters appeared rather infrequently as revealed by the data in Table 2. Seemingly, this strategy can be most important to developing pupils' abilities to skim for specific materials.

When recalling that Table 1 listed 284 evaluation questions asked by the study teachers, it is interesting to note in Table 2 that 36 of these questions were followed up with an explanatory question. It would appear that stu-

TABLE 2
FREQUENCIES OF QUESTION CLUSTERS* USED BY
SECOND, FOURTH, AND SIXTH TEACHERS

SP Follow-up	Verification	Justification	Judgmental	Total
67	33	35	6	142

* Combination of two related questions.

dents are asked to place value on many things but not asked to support such positions.

Judgmental clusters appeared virtually nonexistent.

Presumably, teachers might profit from their own answers to such questions as the following:

1. Do I set purposes in advance of reading and then follow them up to see if the students have achieved them?
2. To what extent do I ask students to use flexible rate skills (skimming, scanning) in verifying information?
3. Do I invite frequent unsupported value judgments? Should I or shouldn't I?
4. How can I make better use of the opportunities for clustering questions?

Conclusions

Essentially, the reported research found that teachers tended to a) emphasize recall thinking about reading; b) utilize several controlling actions to cue, clarify, extend, or shut-off pupils' thinking or answering; and c) miss many opportunities for putting questions together into clusters that would extend thinking.

From the findings it is useful to speculate about certain factors that might result in reading questioning strategies that would be of high value. In posing questions the feeling was developed that better readers might emerge if teachers would do the following things:

1. Determine what kinds of thinking outcomes they want to develop.
2. Determine what relative importance to put on the various kinds of thinking outcomes with groups and individual readers, i.e., a heavy diet of recall questions for the word caller.
3. Determine what kinds of think-

ing can best be developed in the various kinds of story or reading material. (Certain stories might be rich in conjectural possibilities while others might be bare.)

4. Determine which basal-reader-guide questions have value for various groups and individuals.
5. Determine whether they ask clear, unambiguous questions.
6. Determine whether students are permitted to answer questions or whether the teacher moves in and does the answering.
7. Determine what actions are taken or not taken to clarify vague questions, provide appropriate cues, and to extend thinking on a given topic.
8. Determine which questions can properly stimulate thinking followups of previous questions and answers.

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A Design for Teaching the Independent Use of Comprehension Skills

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THE WORLD OF TOMORROW presents a tremendous challenge to the children of today. The amount of learning has increased. In addition, there is a constant reminder of an ever-expanding

knowledge explosion further complicated by the introduction of technology in education. It has become apparent that memorization of facts is cumbersome and in many instances, valueless. What can educators do to help youngsters cope with this expansion?

To develop understanding rather than a mere memorization of facts, Bruner (1) suggests structuring details into related groups or concepts and an early exposure to appropriate skills which would prepare the youngster for more mature attitudes in learning.

A part of the task involved in translating these theories into practice can be achieved through the development of study skills at the primary level (2). The sequential program which is described in this article is structured to assist the young reader in the early acquisition of study skills. The ability to find the main idea—a skill which is used in more advanced comprehension skills such as notetaking, outlining, and summarizing—is at the core of this language-development program.

In order to understand its value, the following questions must be considered:

1. How does this program relate to language and the language arts?
2. Why do teachers need this sequence?
3. What are some understandings upon which it is based?
4. Which thinking processes are involved?
5. How are the comprehension skills developed in this program related to the other reading skills?
6. What is its scope and sequence?

How does this program relate to language and the language arts?

Language is the social process involved in communicating thoughts to others (3). It includes the reception of thought through seeking, listening,

and reading and the transmission of thoughts through speaking and writing. Listening and speaking are reciprocals as are reading and writing. This sequence of lessons has given consideration to the development of skills in reciprocal areas simultaneously. Thus, a pupil may first become aware of sentence meaning and sentence structure through pictures and then through listening, speaking, reading, and writing.

Why do teachers need this program?

The strategy was instituted to provide vertical growth in selected study skills rather than a horizontal expansion of a broad variety of skills. Lessons in this program have been planned to keep both teacher and pupil aware of the sequence of learning involved. Since the activities commence with picture analysis and structurally regular reading selections, the youngster may apply more mature comprehension skills at an earlier date.

What are some understandings upon which it is based?

It is based on the understanding that comprehension is a thinking process similar in readers of all ages. It is related to intelligence and is affected by personal prejudices, emotions, and concerns.

Comprehension must be developed on a level where word recognition is not a problem. In the case of the beginning reader or with more mature readers who are not aware of the structured thinking involved, it may be necessary to go back to the nonverbal or picture root of the comprehension skill which is being structured.

Concept and vocabulary development must be considered. For a child to organize or evaluate a reading selection, he must have adequate background. It is also important that the material should be appropriate for the skill being developed.

Which thinking processes are involved?

Russell (3) enumerates the following processes of thinking: perception, association, and conceptual thinking. Each of these processes is employed in the application and development of the comprehension skills in this sequence. However, there is an emphasis on conceptual thinking, problem solving, and critical thinking.

How are the comprehension skills developed in this program related to the other reading skills?

There are different levels of difficulty represented in the reading task. These levels interact and cannot be truly isolated from one another. In the order of difficulty, they are word recognition; reading for details, determining the main idea, and critical reading. The comprehension skills stressed in this program are the ability to find the main idea, and critical reading. The comprehension skills stressed in this program are the ability to find the main idea and critical reading.

What is the scope and sequence of this program?

This program is divided into three sequences. Each commences with a nonverbal or picture situation and flows into related language-development activities in the work study area. There is some overlapping of the three sequences. Developmental lessons in Sequence Two and Sequence Three should commence with a review of the activities in the previous sequence.

Sequence One is a picture-based sequence which is applicable to the readiness level at kindergarten and first grade. It offers an opportunity for structuring the thinking processes involved in determining the main idea and the application of critical thinking on a prereading level. Diagrammatic pictures are used to induce the skill of classifying simple details into main

ideas. Classification of words and ideas is developed through a listening and speaking approach.

Sequence Two applies to high first through high second grades. The goal of this sequence is to develop sentence meaning and paragraph structure. It utilizes pictures, auditory recognition of sentence patterns, construction of simple sentences and paragraphs, and identification of main ideas in controlled reading situations.

Sequence Three applies to third grade and up. Diagrammatic pictures are used to illustrate outlining, main ideas when expressed as a title, and the difference between major and minor details. It culminates in the application of this understanding in work study reading and in writing reports in the content areas.

SCOPE AND SEQUENCE CHART

SEQUENCE ONE

(A picture-based sequence)
kindergarten through first grade
Picture Analysis to illustrate
Simple Details
Classification
Critical Thinking through Judging
The Source
Suitable Source
The Information
Fact and Fancy
Relevant or Irrelevant
Emotional Effect

SEQUENCE TWO

(Pictures to paragraphs)
High First through High Second
Picture Analysis to illustrate
Simple Details
Classification
Critical Thinking
What is a sentence?
What is a paragraph?
What is the main idea of a paragraph?
THAT Main Idea can be expressed as a Title.
Related Language Skills
Listening to sentence patterns
Writing simple sentences
Writing simple paragraphs around a main idea

SEQUENCE THREE

(Pictures to paragraphs)
Picture Analysis to illustrate
Main Idea = Title
Major and Minor Details
Outlining

Paragraph Analysis to identify Main Idea when expressed as

- A Title
- A Key Sentence
- A Key Question
- Key Words

Critical Reading to develop organization through:

- Outlining
- Notetaking
- Summarizing
- SQ3R

Critical Reading in Judging

- The Source
- The Author
- The Information

Related Language Skills

- Writing a Report by
- Constructing an Outline from a Title
- Expanding an outline into well developed paragraphs.

In summary, the young reader can be assisted in the early, effective acquisition of study skills through the application of carefully structured instructional sequences—starting with pictures and culminating in paragraphs.

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Primary Creative Reading

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A BRIEF SURVEY of the literature reveals that the concept of creative reading has not been sharply defined. Creative reading and critical reading are frequently described in similar terms and with closely related examples of behavior cited. Let one first attempt to answer these questions: What is creative reading? What is the relationship between critical and creative reading?

Creative and critical reading

Russell (5) in *Children Learn To Read* suggests that individuals read at

four overlapping levels: 1) word identification, 2) casual skimming, 3) reading for exact, literal meanings, and 4) creative reading.

What is involved in each of these levels? Word identification refers to pronouncing or calling the words. Little attention may be given by the reader to meaning of the words or recall of ideas. In casual skimming, the reader rapidly gains an overview of the total selection, perhaps in an attempt to determine whether detailed reading is required. Literal comprehension—reading for exact meaning—requires careful reading. The reader typically responds by recalling the ideas as stated by the author. When questions—such as, “Where did Jimmy go?” “What did he buy?” “Whom did he see on his way home?”—are posed, practice is being given in developing skill in exact literal comprehension.

What happens in creative reading? Creative reading, according to Russell (5) includes reading for implied and inferred meanings, appreciative reactions, and critical evaluations. Discussion of questions—such as, “What do you think will happen now?” “Why?” “How do you think the story character felt?” “Have you ever felt like that?”—requires reading for implied and inferred meanings. Literal comprehension of the facts is, of course basic to this type of reading. But the reader is required to go beyond, to read between the lines, and perhaps to derive original meanings and ideas in relationship to his own experience.

Literal understanding and going beyond the words of the author are also required in reading for appreciative reactions. Reading for appreciative reactions draws heavily upon ability to employ imagery, to identify with the story characters, and to relate emotionally. For example, the child who can picture vividly in his mind the one scraggly cat in *Millions of Cats* (2) is

utilizing imagery. He is identifying strongly with the story when he indicates, "I would love that cat. I wish he were mine."

In the third type of creative reading, critical evaluations are required. The child who is able to distinguish between real and fanciful tales is making a start on evaluating reading material critically. He compares his past experiences with the story facts and concludes that "this story really couldn't happen, because. . . ." In critical reading, material is evaluated by comparison with known norms or standards, and a judgment is made.

One might then conclude that critical reading is an aspect of creative reading. The total act of creative reading demands that the reader produce fresh, original ideas not explicitly stated in the reading material. The reader becomes an active participant—really a coauthor—and he adds to what the author has written. Creative reading requires thinking, imagination, and emergence of ideas which are products of the reader's thoughts. The reader gives something of himself.

Who can read creatively?

One of the major misconceptions is that creative reading should be delayed until later grades. Any child at any level can engage in creative reading. This is not to say that all children can think on the same level. Of course, individual differences exist. But, opportunities for the development of creative reading abilities must be included in the reading program at all levels. Creative reading is a complex skill which cannot be perfected in any one grade once and for all.

Developing creative reading abilities

Look at several situations at various primary levels and note some activities in which creative reading abilities were being developed.

On the prereading level, the teacher

had read aloud the story *Ask Mr. Bear* (1). Danny, the little boy, wanted to give his mother a birthday present. He asked several animals—a hen, goose, goat, sheep, and cow—to give him something, but he rejects each offer. Finally, he accepts the suggestion of Mr. Bear and gives his mother a big "bear hug." After the teacher had read the story, the class decided to act out the story. Along with the usual preparation, there was considerable discussion of how Danny felt at the beginning of the story. The teacher posed such questions as "How do you think Danny felt when he had talked to the first two animals?" "Do you suppose he was becoming discouraged?" "How would you have felt?" "Can we show our feelings as we act out the story?" This line of questioning was continued. The youngsters were inferring emotional reactions and then living the part.

The next sequence took place on the following day. After recalling the story, with teacher guidance the group planned a new version of the story by creating new characters that Danny might have asked. The result was that the story was changed to a modern city setting. Danny asked his friend next door, a neighbor, the postman, and finally the teacher—who suggested he make a birthday card at school. This teaching situation represented going beyond what was read and called into action imagination, fresh ideas, and original constructs of the students.

In another primary classroom, *The Snowy Day* (4) was being read aloud by the teacher. At intervals in the story, the teacher stopped to ask these questions: "Do you think Peter had seen snow before?" "Why or why not?" "Can you think of any ways that Peter might have been able to keep his snowball from melting?" After the story the teacher stated: "Let's pretend that you are Peter. You are going to tell your friend what

happened to the snowball. What would you say? What would Peter's friend say?" Several opportunities were given for different students to take the role of Peter and his friend. The ensuing conversations provided pupils an opportunity to engage in a meaningful creative reading activity based upon reading.

The carrying out of creative reading activities at the primary level is not limited to those situations in which the teacher reads aloud. Similar possibilities for furthering creative reading abilities are inherent in basal and supplementary reading materials.

An example of such occurred in a lesson observed in a second grade classroom. The teacher was preparing the reading group for the story "Jeff and the Fourteen Eyes" in the book *Star Bright* (6). Initially this question was posed: "From the title, can you imagine what the story might be about?" A lively discussion followed, with numerous ideas expressed. After the reading of the story, pupils compared what the author included in the story with their initial guesses. Later discussion led to each pupil's writing another episode to the story.

Perhaps these secondhand visits to real classrooms sufficiently sparked your thinking about ways in which skills of creative reading can be encouraged and practiced. Each teacher must select and create activities suitable to the abilities of the children within her class. The following activities seem especially appropriate to primary grades:

1. Speculate what the story is about from the story title. After reading the story, compare points of likenesses and differences.
2. Respond to questions posed by the teacher during guided reading: "What will happen next? Why do you think so?"

3. Discuss the accuracy of illustrations; compare to size, color, and characteristics of objects in real life.
4. Evaluate the story characters. Decide whether or not you would like to have them as friends.
5. Tell (or write) the story from the point of view of different story characters.
6. Discuss moral issues in story, i.e., was Little Red Riding Hood a *bad* girl for stopping to pick flowers and not going directly to her grandmother's house? Put yourself in her place. React as you would.
7. Create new story endings, either orally, pictorially, or in written form.
8. Discuss whether story events could happen today. Why or why not?
9. Discuss what might have happened before the story opened and what might have happened after the close.
10. Answer questions which involve sensing relationships, i.e., "Why did _____ say . . .?" "What would you have said if you were in the same situation?" "Has anything like this ever happened to you?"
11. Act out the story as it was written by the author. Add different events and sequences and/or new endings.

Guidelines for teachers

The teacher plays the key role in structuring the instructional program in such a way that creative reading abilities are developed. What guidelines, then, can be used by teachers desiring to further this higher level of reading?

First of all, teachers must examine their definitions of reading. Parroting

back the words of the author is the goal of too many teachers. Although recall of the author's ideas is one phase of the total instructional program, a broader definition is needed. As Gray (3) stated, reading has the four dimensions of perception, understanding, reaction, and integration. Reaction and integration represent the area of creative reading.

Second, teachers must provide instructional time for creative reading activities. And it does take time! If there are to be thinking and reaction to the content of reading material, the idea of "completing so many pages" in a day or "so many books" in a year must be abandoned. Pupils must be given time to react thoughtfully and to be creative.

Third, teachers must not limit the opportunities for engaging in creative reading activities to only the most talented readers. Every pupil has some creativity within him.

Fourth, teachers must establish a classroom atmosphere and environment conducive to creative thinking. Certain physical, psychological, social, and emotional conditions must be present. A comfortable room arrangement, one which is intellectually challenging, should be provided. Also required are good rapport with the students and acceptance and respect for each student and his ideas.

Fifth, teachers must be aware of possibilities in which the total curriculum can be used to further creative reading abilities. Although only phases of the reading program have been used to illustrate creative reading situations, the total school day abounds in situations from which creative reading activities emanate.

Sixth, teachers must realize that posing provocative questions about the reading material—both before, during, after—is one of the most effective

ways to stimulate children to think as they read and to think creatively about what they have read. It is in the way that the teacher motivates and questions about reading that creative abilities are developed. Questions involving varied responses should not be shunned; they should be included in each lesson.

Lastly, teachers must recognize that young readers acquire creative reading abilities only after many opportunities for practice. If early results are unsuccessful, one must not become discouraged and give up.

Conclusion

Primary teachers should be greatly concerned about developing creative readers. Creative reading requires the reader to produce fresh original ideas, develop new insights, and respond imaginatively. If students are to grow in their abilities to read creatively, numerous opportunities must be provided in the school program. Teachers can create opportunities to further creative reading abilities.

If one becomes proficient in developing this higher level of reading, his pupils will become more excited and more enthusiastic about reading. And, one will gain increased satisfaction and rewards!

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An Approach to Teaching Inferences—High School

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Educational Developmental
Laboratories

SOME YEARS AGO, when I was a beginning English teacher who understood little about the necessity of utilizing good principles of teaching reading in classes, I assigned required book reports almost as frequently as there was a full moon. I suspect now that the reports were of little value to my students, for what reluctant reader would come to love books just because he had to write eight or so plot summaries and what-I-think-of-this-book statements in one school year?

At least one of the book reports, however, was of great value—to me. One junior girl had chosen to report on George Orwell's *Animal Farm*. Although I cannot recall exactly how well she summarized the plot, I doubt that I will forget her opinion of the novel: "It was the dumbest animal book I ever read."

Not only did I learn from this one report the importance of guiding students in their outside reading but also I learned that not all students have the ability to make inferences or understand what the author means even though he does not literally state it. This student had, of course, grasped only the literal meaning of *Animal Farm* and had missed the implied meaning of Orwell's satire of communism and the totalitarian state.

How important is it that students learn to make inferences? Many authorities in reading have written of the necessity of comprehending more than literal or stated facts, and perhaps the most striking statement is that given by Richard Altick in his *Preface to Critical Reading*:

If there is one point which we have emphasized over and over again, it

is this: The real meaning of writing that matters most is not found on the surface, in the actual, literal significance of the words. . . . Often . . . writers leave the surface comparatively bare; the meaning of that level is plain and simple. The untrained reader in all probability will consider this to be the *only* meaning. But underneath that simple exterior of restraint there lies a rich hidden treasure of suggestion and implication, which the mature reader will appreciate the more because it has not been publicly advertised. It is his reward for being a perceptive and sensitive reader (1).

Although this "rich hidden treasure of suggestion and implication" is found in much writing, the use of implication is most marked in two literary forms, the short story and poetry. The author of the short story and the poet—who must work with a minimum of words—strive to compress a maximum of ideas into their terse writing.

Let me illustrate the use of concentrated implication of ideas with Sean O'Faolain's discussion of the opening sentence of the short story "The Lady with the Dog" by Anton Chekhov. The story begins, "It was reported that a new face had been seen on the quay; a lady with a little dog." O'Faolain details the many inferences which the perceptive reader can make from this single sentence: 1) The setting is a port. 2) This particular port is a resort by the sea, since a lady would not be expected to walk with her dog on a commercial dock. 3) The weather is fine, and the season probably is summer or autumn. 4) The resort is a small, relatively unfrequented place, since new faces go unnoticed at large, crowded resorts. 5) The words "it was reported" suggest that gossip is circulated at the resort in a friendly way. 6) The person who hears the gossip is a man (4). Certainly not all readers are as perceptive

as Mr. O'Faolain, but his analysis gives us a goal to aim for.

One of my problems as a teacher of English—and, later, of reading—was how to help high-school students improve their ability to make inferences. In an attempt to solve this problem, I first surveyed the available materials for teaching reading and improving reading ability and found, first, that many texts—rather than defining the term “making inferences”—either list the skill or give a synonymous label.

Often the method for teaching the student to make inferences merely is to have the student answer a question involving the skill and to check his answer with the one provided in the teacher's answer key. Little help is given the student either in making the inference or in judging its accuracy.

The survey of the literature also disclosed that, while the importance of the reader's making inferences is frequently emphasized, a comprehensive analysis of what is involved in making inferences is not available to the teacher. In discussing comprehension skills, many authorities in reading do not list or discuss the components, or subskills, which underlie the general skill; other authors give what appear to be fragmentary lists or incomplete discussions of the subskills. Further, the survey disclosed no sequential order which the high school teacher can utilize in teaching the subskills.

In developing an approach to teaching inferences in high school, then, the writer sought to answer these questions:

- How can the term “making inferences” be defined?
- What are the subskills which comprise the general comprehension skill of making inferences?
- Can the subskills be arranged in a sequential order for effective teaching in the high school?
- What methods of teaching the

skill of making inferences are appropriate?

Definition of “making inferences”

Among the terms used by authorities in the field of reading which seem to be equivalent to “making inferences” are “reading between the lines,” “seeing the meanings implied but not stated by the author,” “grasping meanings inherent in the passage but not stated,” and “ability to draw inferences.”

The term “inference” is defined in the *Dictionary of Education* as “a deduction; a truth or proposition obtained or derived from another that is admitted or supposed to be true” (3). In discussing patterns of clear thinking, Altick states that “any sequence of assumptions (that is, *premises*) and conclusion is called an *inference* or *argument*,” (1). For the purpose of this paper, “making inferences” is defined as “arriving at conclusions by reasoning from evidence or premises.”

Collation of subskills

Because of the paucity of research that has been done to identify the subskills involved in the comprehension skill of making inferences, it was necessary in collating the subskills to rely extensively on the opinions of reading authorities. Some difficulty was encountered in grouping these subskills because different authors consider making inferences to be an aspect of different types of reading—critical, creative, and interpretive; adequate definitions of terms are seldom given; and what appeared to be the same subskill was designated by different terminology.

The subskills suggested by various authors fall largely into five categories, which are arranged here in a logical sequence from simple to complex:

1. Subskills which may involve symbols other than words

Studying the pictures accompanying the text

2. Subskills which may involve only parts of single sentences
 - a. Interpreting language which uses color and exaggeration to make the statement more effectual
 - b. Interpreting idiomatic expressions
 - c. Interpreting metaphorical expressions in common usage
 - d. Interpreting allusions
3. Subskills which may involve only single sentences
 - a. Making simple conclusions from given information
 - b. Recognizing exaggeration
 - c. Recognizing oversimplification
4. Subskills which may involve multiple sentences
 - a. Perceiving similarities in ideas and events
 - b. Perceiving differences in ideas and events
 - c. Recognizing cause-effect or symptom-cause relationships
 - d. Seeing interrelationships among ideas
5. Subskills which may involve complete passages
 - a. Visualizing a scene or idea to understand the implied meaning
 - b. Recognizing the author's intent and mood
 - c. Using an understanding of the implied meaning to forecast or predict the trend of the succeeding passages
 - d. Grasping the author's pattern of thought as a whole

Some subskills clearly overlap more than one category, and the list is not intended to be all-inclusive. Nonetheless, this collation should give the teacher a better understanding of the complexity of the general skill of making inferences, and it should suggest

an order in which the subskills may be taught.

Prerequisite skills

Before the student can obtain the broader meaning of a passage, he must be able to grasp the literal meaning. Literal comprehension, however, is but one of the many prerequisites to making inferences. The student must understand various techniques and devices of writing—colorful language, exaggeration, oversimplification, idiomatic expressions, metaphorical expressions, and allusions. Further, the student must be able to perceive similarities, differences, and interrelationships among ideas. He must be able to visualize a scene or idea; he must recognize mood and grasp patterns or organization. And, perhaps most important, the student must check his inferences against his experience and information.

Teaching methods

In teaching the general skill of making inferences, the high school teacher should first alert the student to the importance of this comprehension ability. One effective way—as obvious as it seems—is to ask questions which require the student to make inferences, rather than merely recall literal information.

It is my experience that the most difficult aspect of teaching inferences is assisting the student in checking his ideas. Use of the categorical syllogism, a method of analyzing a process of deductive reasoning, proved to be of value in my classes.

The categorical syllogism is the statement of an inference, ordinarily in three sentences, e.g.:

All birds have feathers.

Robins are birds.

Robins have feathers.

In examining this syllogism, one finds that it contains three different terms. Two of the terms appear in the first sentence—*birds* and *feathers*. The third

term, *robins*, is introduced in the second sentence, while the final sentence contains no new terms.

The final statement of the three is called the conclusion of the syllogism. The predicate term of the conclusion, *feathers*, is known as the major term; the subject of the conclusion, *robins*, the minor term. *Birds*, the term common to the first two sentences is called the middle term.

The first two statements of the syllogism are named by the term they contain which also appears in the conclusion. Thus, the first statement, "All birds have feathers," is known as the major premise because it contains the major term. The second statement, "Robins are birds," is called the minor premise since it contains the minor term.

To be valid, the categorical syllogism must be set up according to certain rules. For example, it may contain three and only three terms. Other basic rules which are the "first principles" of categorical syllogisms are given in various books on logic. [See, in particular, Cohen and Nagel's *An Introduction to Logic and Scientific Method*] (2). These rules should be adapted to the needs and capabilities of students at different levels.

One distinction which should be made here is that syllogisms may be *valid* or *invalid* and *sound* or *unsound*. "Valid" refers to the process of reasoning; "sound" refers to the truth of the premises.

Thus, the syllogism cited earlier is valid. Whether the syllogism is sound depends on the premises "All birds have feathers" and "Robins are birds."

Consider the use of syllogistic reasoning in teaching inferences. Assume that a student is previewing a story which has a picture of a man who apparently is being chased by a policeman. Assume, too, that the teacher has asked, "Why is the man running?"

—a question that requires making an inference.

If the student is unable to give an answer, the teacher might query, "Why do people run from the police?" Suppose that the student then replies, "They run because they have committed a crime." The teacher should ask if this reason might apply to this illustration. Then, the teacher should elicit the conclusion of the inference and have the student state the inference as a syllogism. The syllogism could be stated:

All criminals are fugitives.

This man is a fugitive.

This man is a criminal.

The teacher should lead the student to the realization that, while the syllogism is valid, its soundness depends upon the truthfulness of the premises.

Concluding remarks

It is important that students have the ability to comprehend beyond the literal level. Making inferences is an important comprehension skill which does not seem to be acquired incidentally by many students. It is, therefore, the teacher's responsibility to provide direct instruction in this general skill.

The high school teacher should be aware of the prerequisites for making inferences. He should regard growth in this aspect of reading as a sequential growth which proceeds from simple to complex. In utilizing efficient methods for cultivating growth in making inferences, the teacher may use the categorical syllogism in assisting the student to check his ideas against his experience and information. Perhaps then, students can more fully discover and appreciate the hidden treasure of writing.

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Building Reading Skills via Reading the Newspapers

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USING THE DAILY NEWSPAPER AS material, one can teach all the most important reading skills. This statement is true whether one is speaking of the simplest skill, i.e., vocabulary, or the most complex and highest technique, critical and creative reading. In between are several other important skills: comprehension leading to interpretation and evaluation; fact and opinion differentiation; ability to combat propaganda devices; and absorbing and acting on editorials and columns. All these six major areas can be taught by the teacher and learned by the students when using the daily newspaper as the living textbook.

Obviously there are many words in a newspaper which can add to vocabulary growth. Here are several lists which are garnered from just one edition of one newspaper. On the front page were the following: massive, erupted, demonstration (variety of meanings), predominantly, memorial (from known word, memory), puppeteer, jibbed, exultant, gigantic, applauded. The Washington bureau of a large, metropolitan New York newspaper used these: impasse, largesse (derivative of large), perceptibly (ble) stalemate, consistent, commitments, expenditures, dilemma, incur, appropriation, confirmed (synonym, antonym), available (ility), urban (ity), obligations. The editorial page contained approximately 20 words, with

the following as examples; immunity, disquiet (prefixes), radiogram, land-locked (compounds), communication (whole family of words). And surprisingly the entertainment pages, theatre, and tv had the most, some 37, many of which could be used in various ways to expand vocabulary—all totaling enough words to keep students busy with meanings. Please notice that "meanings" is plural, for not only must the meaning which fits the context be discovered but its several other meanings must be explored and then stored in the mind for future use. That words have a variety of meaning must be taught by the teacher and learned by the students.

Over and beyond multiple meanings there are other aspects to word study, some of which were put in parentheses in the lists: synonyms and antonyms, prefixes and suffixes plus roots and stems, derivations, compounds—especially newly made ones, plurals, changing nouns to verbs or adjectives, and changing verbs to nouns or adverbs. Ahead lie phonics and linguistics, etymology as it relates to the history of change, and that sparkle known as semantics. All these can be fruitful and nourishing to an underfed vocabulary. But perhaps the most absorbing and entertaining aspect of how words are put to multiple uses is a consideration of the difference between the vernacular and colloquial. And following down the road of verbal respectability is slang.

Two interesting examples will be enough to demonstrate the somewhat confusing intricacies of language. A child's *sucker* (colloq.) can become respectable by changing to *lollipop*; but if a *sucker* is a person easily imposed upon, it is slang. *Phone* is colloquial for *telephone*, but a *phony* is slang for *not genuine* or *fraudulent*. Yet *faker* is colloquial. Notice, too, that neither dialect nor jargon were mentioned until now.

Many are fascinated by special lingo, be they those of sports, the stage, TV, cooking, or autos. They are always attractive and apt. Students, too, like to be introduced to some of the mysteries of lingo. Try these sometime. As examples under sports: red dog, read the play, good kick, suicide squeeze play, garbage man, taxi squad, dunking, cup of coffee, and coffin corner. For girls: Autumn Haze, ragout, and boutique. For a tv glossary: lock-jaw, Venetian blind, gallows, fish bowl, all out.

Once in a while try daffynitions. Home: a place where you get out of wet socks and into a dry martini. Singing commercials: the rhymes that try men's souls. Back-seat driver: the only kind that never runs out of gas. Urban renewal: edifice wrecks. One might even suggest that students try their own hand at daffynitions.

Vocabulary—whether it is word recognition, word analysis, word study, word attack skills, or word meanings—is still just words unless it leads to comprehension of ideas or concepts. The words must add up to understanding the main idea the author wants to convey. The reader must get the general idea and answer the question, "What was this all about?"

Can practice in gaining added competence in comprehension be given with the material from the daily newspaper? It undoubtedly, can for two good reasons. There is a wide variety of different kinds of materials: news items of short length and longer news stories, continued stories, sports stories and columns, science and space material, entertainment matter, columns, and editorials. Also, this material runs the gamut in the degree of difficulty presented from easy material, such as feature and human interest stories, through moderate, as in local and non-earth-shaking news or some sports columns, to the more difficult thinking involved in understanding columns and

editorials on larger questions and problems of a national or international scope.

The material is there—easy to find by the student for practice on his own; the material is there—ready to be clipped by the teacher for current instruction and further use with the next group. With those students who have some difficulty in grasping main ideas, the instructor can use regular news items and stories. In these there is no doubt where the main idea is located, for it is contained in the first paragraph(s), commonly called the lead. Human interest and feature stories are also good material because there is not a heavy load of ideas, and the main idea is practically self-evident, containing no need to dig deep. A great many sports stories belong to the category of easy to grasp.

For material more difficult to handle, turn to the various newspaper columns of opinion and to editorials. In this type of material, the last paragraph is just as important as the first, perhaps more so; and the paragraphs in between are vital because they contain step by step, idea by idea, a logical development of the major idea. None of these component ideas can be neglected; each must in its turn be grasped as a part of the whole developing concept. Of course, some editorials and columns are lighter than others, such as the glories of spring, or the grandeur of fall, or the vagaries of clothing styles. Perhaps the latter types would serve as a good introduction to the editorial page. Or maybe letters to the editor could be the starting point.

In any case, comprehending columns and fully understanding editorials will take much time, plenty of instruction, and ample practice—all in the classroom and on school time. Do not settle for comprehension alone. Push on and lead the students from "What has been said?" to "What does it mean?"

Signify." and on to "How do you evaluate it?" From comprehension one must go on to interpretation and then to evaluation. All students, teachers, and other citizens must not only know the news but must be able to gauge its significance and to judge its importance. This function is a three-way process of chewing, digesting, and assimilating. It is a way of changing food for thought prepared by others into mental activity on one's own. Others' thinking stimulates one's own thinking. This process is the main thrust not only of editorials and newspaper reading but also of all education.

On differentiating between fact and opinion one example will be taken:

DELUGE DOOMS M_____?

By _____

M_____. If flood-control plans mapped by the Army Corps of Engineers ever reach fruition, this township is in for a drenching comparable to the one Noah built his ark for.

The plans—and there are at least four variations of them on the same theme—call for more than \$500 million worth of construction or destruction.

It is quite evident that the headline overstates the case with "deluge" and "dooms." Furthermore, it is a prediction—not a fact. Even the question mark does not retrieve the situation. Reference to Noah and the flood he encountered is the writer's opinion and his figure of speech. And the use of "destruction" intrudes the reporter's opinion of the \$500 million plans. These intrusions, called "editorializing" by newspapermen, are rather obvious, but not all these efforts are that easy to detect. Some writers use more subtle methods and employ adjectives, verbs, and adverbs to foist their opinions on unsuspecting readers. If the buyer must beware, the reader must be wary. And it is one of the jobs of the teacher to make his students aware of the difference between fact and opinion.

Propaganda devices—inuendo, name calling, guilt by association, etc.—all nine or ten of the most commonly used, can be studied by newspaper reading. They will rarely be in the better newspapers, but they can be found more readily in the lesser journals and should be analyzed for method and degree. This work probably cannot be done on a day-to-day basis because propagandizing does not occur each and every day. But the teacher should discover and disclose examples from time to time. Alert the students to the various devices with examples as they find them. Even if the students find items which are really not outright propaganda, these, too, can be valuable. We can learn from errors, by negatives.

Summum bonum means the highest good; consequently, if all roads lead to Rome, then all reading activities—vocabulary development, fact and fiction differentiation, propaganda spotting, the comprehension-interpretation-evaluation sequence, and the study of and thinking about editorials and columns—should culminate in critical and creative reading.

What is meant by critical and creative reading? No precise definition will be attempted here, largely because it limits imaginative thinking and planning and hamstrings teaching and action. Instead, one should construct a flexible framework of reference within which he has the freedom to move and act. Build a working concept of one's own and modify it later if necessary.

For example, the writer begins with the fundamental idea that critical and creative reading must be based firmly on comprehension. One must first completely understand what a writer has said before beginning to agree or disagree with him. Know the *why* of his *what* in order to say either "yes, but . . ." or "no, for this reason." Be ready to agree with the author or argue with him. To any of his points

be able to offer a counterpoint; to his thrust, a parry.

To reduce this whole concept to a few words, so that it is mentally manageable, critical and creative reading involves critical thinking. Creative reading is closely allied to critical reading—*joined* might be a better word. Perhaps the terms are Siamese twins. Creative reading can and should issue from critical reading. The creative reader adds something of his own to the writer's thoughts or feelings. At whatever point the author stops his thinking and writing, the creative reader begins his own thinking and uses his mind and imagination to further the ideas or concepts, to modify and change them, to think deeply, to imagine, to synthesize. The creative reader becomes his own writer. Creative reading is the prelude to creative thinking.

If this working concept is satisfactory *pro tem*, then ask, "How can one best foster critical and creative reading?" Not denying the value of other material, it can be done by newspaper reading—and done well.

Start with editorials and columns if the students are advanced with quick and penetrating minds. Use any editorial of the student's own choosing or furnish one or several on current topics or perennial problems. For instance, "Creativity in Science" talks about freedom's being the most fertile source of creative science. A comparison between the U.S. and the U.S.S.R. as to methods and results of a wide range of endeavors and activities, science, industry, space, and medicine, would be in order. It should precipitate a healthy discussion of the merits and demerits of government subsidies. It should produce a considerable amount of thinking, plus study and research to establish points and arrive at conclusions. It should promote critical reading and thinking.

"Should Delinquents Be Punished?"

is another editorial, and it should have appeal to young persons since juvenile delinquency is so much in the news and on everybody's mind. A quickly reproduced copy in every student's hand would be a forerunner to the discussion. It would be interesting to see if the students discover—early or late or not at all—that this is a "canned" editorial.

Start with advertisements, for they allow all levels of ability to function and the student motivation is high. Pick an ad and let them react to it. "Fabulous Special Purchase in which you can save \$17 and \$21 off comparable values. Very famous maker's double wool knits at \$15. Comparable values \$32 and \$36." To believe or not to believe is the question, and the answers should be revealing. Semantics is found to enter with a discussion of the meaning of "comparable values."

Zsa Zsa Gabor says "Save money at Aamco." They offer "Complete inspection service for \$23. Includes: removing, dismantling, thorough inspection." What will critical reading reveal? About the \$23 charge? About other charges for parts and further labor to reassemble? About the worth of a testimonial by a beautiful actress?

"Get Ready for the First Moon Flight. Accept an amazing 4-in-1 Revell Apollo Model. Yours for only 10¢." All this is in $\frac{1}{4}$ inch to $\frac{3}{8}$ inch type on the front page of a four-page leaflet. In parentheses near the price in very small print, approximately $\frac{1}{32}$ inch, is "with trial membership." Finally after three pages and hundreds of words, the reader will discover after careful and critical reading that membership costs \$1.00 each and every month for a science kit plus shipping and handling.

That is the negative side to reading ads critically. But there is a positive side, for there are some good ads. Picture a clear plastic bag filled with large English walnuts and the name

Diamond stamped on it. "Any brand beside *Diamond* would be just plain nuts." How to read it aloud may be a small problem, but how to read it silently—with delight—is no problem for the keen reader.

Imagine a big close-up of a Motorola TV, and on the front glass are these words, accompanied by a bee: "Once in a while you'll find a bug (on the outside)." Most of the Esso tiger-in-your-tank ads are good, and some are great. This appealing one shows a tremendously large but friendly tiger with a pleased, faint smile on his face. His long tail is curled like a muffler around the neck of the gas-station attendant, who is saying "Sorta nice, these chilly mornings."

Cartoons are popular and are a good way to begin critical reading with reluctant readers, with the disadvantaged, and with the less capable scholars. Nancy, Mr. Breger, Donald Duck, Grim and Bear It, The Girls, and Big George are possibilities. Examples from Mr. Breger: A woman is saying to her husband, "My favorite neighbor (pictured through an open door) gives all the gossip straight, unslanted, and without editorializing." From Adcox Associates, Inc.: A dog with a whisk-broom is dusting off the walk to the house for the homecoming man of the house, who is saying "Don't tell me; let me guess. You tore up the neighbor's yard . . . ; you bit the mailman again . . . ; you chewed up my new slippers." From Will-Yum. A son is coming through the front door and is saying to his mother, "I learned in Sunday School that the Lord helps those who help themselves and the government helps those who don't."

The students should be encouraged to point out the absurdities and incongruities in these and other cartoons. The grain of truth should be sought and then applied to various life situa-

ions, both in and out of school. All the cartoons have distinct possibilities for serious discussions: the qualities of a good newspaper, the psychology of placating parents, and the various anti-poverty programs.

Another small step along this path to critical and creative reading is a sports cartoon. These generally are easy to manage. A further step is in editorial cartoons—without editorials at first. Editorials with cartoons are next in this version of a ladder of reading, and the top rung is an easy editorial, which can be reacted to by all. Plenty of time for discussion should be allowed.

So, whether it is cartoons or ads or editorials with which one loads the educational guns, one aims at the target called critical and creative reading, the highest mountain—to change the metaphor.

From the specifics to the generalities regarding the ways and means of getting students to read and react with thinking, come the writer's recommendations, consisting of 3 E's and 3 P's. The three E's are Explain, Exemplify, and Encourage. 1) Explain in detail and more than once or twice the concept of critical and creative reading. 2) Exemplify, not only with examples from a number of writers but also by frequently being the example. 3) Encourage the use of critical and creative reading in all reading.

The three P's are Praise, Palaver, and Practice. 1) Praise any and all student manifestations with well-deserved compliments. 2) Palaver (profusely, but not idly) about all aspects of the material read; talk often and long about both the what and the way and the students' reactions. 3) Practice the art of critical and creative reading more than time will allow, both the small and the larger concepts in the shorter and the longer selections.

Discussion by the whole class, espe-

cially if it involves questions from the students to the teacher rather than vice versa, is a boon to comprehension. This position is the base from which critical and creative reading operates, takes off. When all the previously mentioned things have been done—often and well and with tolerance of both opinion and error—one can hope that critical and creative reading will have been taught and caught. If a teacher can lead his students up the Mt. Everest called critical and creative reading, or even into the foothills, he will have been of great service. He can do a good job with the material regarded as the greatest paperback of all—newspapers.

Reading Mathematical Material

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THIS PAPER is a discussion of the difficulties students have in reading modern mathematical materials. Van Engen (7) presents several major features of a modern elementary mathematics curriculum; each of these has many implications not only for the mathematics teacher but also for the reading teacher. In the elementary school both of these roles are usually played by the same person. Although most remarks refer to the elementary school, many of them are surely applicable to the secondary school.

In the first section of this paper there will be a brief presentation of some of the major features of a modern mathematics program which have particular implications for the teaching of reading. This will be followed by several remarks about the problems of teaching reading which are applicable not only to mathematics but also to all the other content areas, such as, social studies, science, and health. The

major portion of this article will be devoted to the problems students encounter as they read mathematical material. A few practical suggestions to the classroom teacher will conclude this paper.

Van Engen considers problem solving as crucial and central in an updated mathematics program. In order for students to become competent problem solvers, they must learn the verbal language used to express mathematical ideas. Sometimes the verbal connotation of a word is the same as its mathematical meaning. Very often, however, it is not. Many words have different meanings verbally and mathematically. A few examples include words like gross, rational, mean, natural, root, table. There are still other words that are purely mathematical in meaning, such as, circumference, perimeter, area. This facet of reading will be dealt with later in greater detail.

Arithmetic, like reading, is concerned in the first instance with ideas. The ability to read, that is the ability to interpret ideas, is necessary for the understanding of mathematical concepts, relationships, and principles. Reading and mathematics have something additional in common. First-hand experiences in the real physical world in which the student lives are the source of all learning, verbal and mathematical. Verbal concepts are expressed in writing by means of verbal symbols. Mathematical concepts are also expressed in verbal symbols as well as in a very special set of symbols—mathematical ones. Understanding mathematical ideas requires a knowledge of verbal as well as mathematical symbols. From the very beginning then, in a modern mathematics program, children must learn to translate verbal symbols and sentences into mathematical ones.

However, before considering reading instruction as it applies specifically

to mathematics, a few general remarks are in order about reading instruction in all the major content fields of the curriculum, such as science, health, and social studies. It has been the writer's observation over many years as a classroom teacher, as a school supervisor, and as a college instructor that reading instruction in the content areas has been seriously neglected. Insufficient time has been devoted to the teaching of those specific reading skills needed in each major curriculum area.

In the 60th Yearbook of the National Society for the Study of Education, John J. De Boer and Gertrude Whipple support the idea that reading is a major aspect of the other curriculum areas. The point is made that "The relation between reading ability and progress in the content areas is a reciprocal one. An effective instructional program in the various curriculum areas can markedly contribute to young peoples' reading growth, while at the same time competence in reading promotes effective use of content in the subject fields" (2).

Research by Artley, Fay, Husbands, and Shores suggests that reading is not a generalized skill that is transferred to a specific field. Specific reading abilities must be developed in those areas where they are to be used.

The words which cause difficulty in a particular curriculum field are usually specialized and technical. Fay suggests that technical vocabularies are of two types. One group consists of common words or phrases familiar in form but with special meanings depending on the subject in which it is used, such as, "address the chair," "root," "table," or "state of affairs." The other group of technical vocabulary consists of words new to the subject area in form as well as in meaning, such words in arithmetic as perimeter, diameter, exponent, and many others (3).

Not only does the specific vocabulary of a particular curriculum area cause difficulty but the speed of reading must be adjusted to it. "There is some evidence that in science and mathematics the slow, careful readers are higher achievers than the rapid readers. The important skill to develop in the teaching of reading is that of adjusting the speed to the nature of the reading material" (4).

Let one now examine in somewhat more detail those reading problems which are of concern as they relate to a modern mathematics program. The explosion of knowledge brings in its wake an ever-increasing dose of new ideas and new vocabulary. This statement is as true for mathematics as it is for the natural and social sciences. It has been said that the 20th century is the golden age of mathematics. An intelligent reader in the world today must understand the mathematical data and mathematical ideas which are an integral part of all the material which people read in newspapers, magazines, and books.

In the traditional mathematics program the major emphasis in an elementary school was the memorization of basic facts, measurement tables, and simple formulae. The aim today in a modern program is to shift from rote learning of isolated facts to an understanding of basic mathematical ideas, to see interrelationships of all the basic operations to one another, and to acquire the ability to solve mathematical problems. To accomplish these goals, a student must learn how to translate what he reads from verbal language into mathematical language and mathematical symbols. The ability to read a new symbolic system, a mathematical one, can be developed simultaneously as the ability to read verbal symbols. Some mathematical ideas are expressed in abbreviations such as qt. for quart or in single letters, such as, "t" for time. Some symbols stand for

basic operations, such as, a "cross" for addition and a "dash" for subtraction. A knowledge of all kinds of mathematical symbols must be acquired if a student is to become mathematically competent.

In a traditional program the emphasis was placed on computational skills. The emphasis today is on understanding some fundamental principles, usually expressed in verbal language. The language in a modern program, however, is more precise and more scientific than it has been in the past. Thus the vocabulary load is a heavy one. Consider several categories of words that often cause difficulties:

1. There are some words which are unfamiliar in form and meaning. They are chiefly mathematical in meaning, such as, circumference, area, reciprocal, percent, exponent.

2. There are clusters of words which express the same concept, such as, a) decreased by, diminished by, reduced by and b) add, and, plus.

3. Some words found in mathematical books may be familiar to the student in form and meaning in verbal language but which have a different meaning when it appears in a mathematical problem, such as, rational, acute, mean, gross.

4. Often problems contain words, not mathematical in concept, which refer to unfamiliar terms from other areas, such as, those used in banking or in referring to space travel.

In addition to reading problems arising because of the vocabulary found in mathematical material, there is another major problem, the rate of speed necessary for mathematical reading. Each curriculum area requires its own reading rate, as indicated earlier in the discussion. Math problems must be read deliberately, carefully, with intense concentration, and with a slower speed. The problems often require re-reading or following directions exactly. No skipping can be allowed. Context

clues often are of no help as they might be in narrative reading. The basic eye movement from left to right often has to be changed to a left-directed movement in order to reread for better understanding. Vertical reading is often demanded. Speech reading is, therefore, not possible under these circumstances.

Thus, one can see that the vocabulary in math books and the reading rate of math materials are major reading problems. There are other difficulties as well. Van Engen states that geometry, long neglected, is now being included in elementary mathematical programs. The letter symbols associated with geometric figures such as



need to be understood. Exponents, brackets, parentheses, and signs for greater than and less than are just a few examples of mathematical symbols that students need to learn. Words and numbers are the usual fare in mathematics. Added to these symbols are letter symbols such as

$$n + 9 = 15 \text{ or } \frac{a}{c} + \frac{b}{c} = \frac{a + b}{c},$$

formerly part of high school algebra.

Reading graphs and charts, so often necessary to enable one to read newspapers and magazines intelligently, is different from reading a paragraph in a story. The title of the chart has to be read, then the labels, and then the chart has to be studied and finally interpreted.

In concluding this part of the discussion, one can agree with Nila Banton Smith that the new mathematics makes heavy demands on thinking skills in reading, such as, interpretation, critical reading, and creative reading. Van Engen suggests that math could be made more interesting to students if "we shift more of the emphasis from routine skills to ideas of mathematical import." Since mathe-

mathematical ideas are usually expressed in verbal symbols, this study requires the kind of reading Nila Banton Smith is suggesting.

One would-be remiss in the discussion if he failed to offer some practical suggestions to the classroom teachers. Aaron (1) suggests five areas of responsibility for the teacher to be concerned about:

1. The math vocabulary, technical and special.
2. The concept background necessary for the understanding of mathematical ideas.
3. The ability to select skills and reading rate appropriate to the material to be read.
4. Proficiency in special reading tasks of mathematical material, such as, the reading of word problems, equations, charts, graphs, and tables.
5. Skill in interpreting mathematical symbols and abbreviations.

To these ideas might be added those by Regis B. Wiegand (8) who proposes that a variety of texts should be used to provide for a wide range of reading abilities in any class. For example, some eighth graders can handle math concepts if presented in sixth grade language.

Nila Banton Smith (6) recommends several steps in the solution of problems which demand reading skills before computation actually begins:

1. Read the problem as a whole, slowly.
2. Reread to find the question to be answered
3. Decide on the process or formula
4. Pull out the appropriate number facts.

In another article Smith (5) suggests that common reading skills such as those recommended by Aaron be taught. In addition to these common reading skills, study skills, such as, the selection and evaluation of material, the organization of this material (as

for a report), the location of information and the following of directions, will help the student develop reading skills needed in mathematics. Furthermore, it is important for the student to develop a strong sensitivity to the differences between texts in mathematics and texts in literature, health, science, and social studies. These skills should initially be taught in the intermediate grades of the elementary school and anytime after that when they are needed by the student.

The literature recommends other practices the teacher might try.

1. The need for the teacher to examine the math textbooks for difficult words. A pretest might be given at the beginning of the year that should be followed by instruction based on the results of the test.

2. Vocabulary should be studied in depth so that many meanings of words can be discovered.

3. To help a student deal with difficulties on comprehension and speed he should be given opportunities to

- a. Draw a picture, make a graph, construct a model, make a table to illustrate the problem.
- b. Read with a purpose—several readings may be necessary.
- c. Translate appropriate math symbols into verbal ones and vice versa.
- d. Rewrite a problem in his own words.
- e. Keep a list of words which have caused difficulty.
- f. Write his own problems and try them out on his colleagues.

The list of ideas for teachers to experiment with can continue indefinitely. One might conclude this part of the discussion with some remarks about a facet of reading which is often overshadowed by the concern for developing specific reading skills. No one can

quarrel with this phase of a reading program. Reading competency cannot be achieved without attention to these skills. One knows, however, that being able to read does not necessarily carry with it positive attitudes toward reading or a continuing interest in reading. Trade books on many reading levels are now available which deal with the history of mathematical ideas, such as, the history of number systems or with the story about famous mathematicians. Books of this type often arouse children's interest in mathematical ideas, enlarge their mathematical knowledge, and develop positive and perhaps even enthusiastic attitudes toward mathematics in particular and toward reading in general. Because of the expansion of knowledge in mathematics as well as in other disciplines, the student today will find it necessary, as he becomes an adult, to continue studying on his own. This interest and curiosity should be encouraged as early in a school career as possible by extensive reading of mathematical books on many levels of reading ability and on many aspects of mathematical content.

An important order of business for teachers of elementary mathematics is for them to become knowledgeable in the new math. College courses, in-service courses, self-study, and, of course, attendance at professional conferences are some ways that can help teachers become competent not only in the teaching of reading but also in the teaching of mathematics.

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Use of Basal Readers in Individualizing Reading Instruction

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IT IS NOT THE INTENT of this article to debate the relative merits of individualized versus basal reading programs. Simply stated, the purpose is to examine the various uses of the basal reader in individualizing reading instruction. To accomplish this end, three major topics will be presented: 1) A viewpoint of individualized reading instruction, 2) Uses of basal readers in individualizing reading instruction, and 3) A review of selected individualized programs emphasizing use of basal readers.

A viewpoint of individualized reading instruction

As one reads the literature, it soon becomes apparent that the term "individualized reading" connotes many different meanings, concepts, and feelings—ranging from broad, general definitions to very limited single-feature definitions. Strang (15) proposes that it is a specific method of teaching reading. Others suggest that it is a way of organizing. Vilscek (50) differentiates between the term *individualized approach* and *individualized instruction*, indicating the first is "a descriptive label for a learning approach" and the second is ". . . labels of accommo-

dation for pupil differences within various learning approaches and within various administrative provisions."

Some early attempts at individualizing (23) presented it primarily as a self-selection program accompanied by periodical individual conferences. Other programs directed students to read through basal readers at their own rate with exercises, check tests, and individual conferences. To some, it has meant a one-to-one instructional situation at all times, with complete abstinence from the use of the basal and its "... narrowly conceived [use] wherein a series of basal readers is used exclusively" (2). Many others (1, 12, 17) agree with Witty's description (53) of an individualized program:

It seems that a defensible program in reading will combine the best features of both individual and group instruction . . . [it] recognizes the value of systematic instruction, utilization of interests, fulfillment of developmental needs and articulation of reading experiences with other types of worthwhile activities.

Vilscek (50) provides additional rationale for some grouping: "To think of individually prescribed instruction as only tutorial in type would be completely unrealistic and impractical for the pupil education of large numbers of children."

Barbe's discussion (4, 5) of "Personalized Reading Instruction" expresses a more systematic instructional pattern, which includes some grouping for skill development and some for reading levels and interests in addition to individual contacts.

After considering the special strengths of all of these discussions, it seems a wisely developed individualized program will include two main tenants. First, it should meet individual differences of skill needs, levels of reading ability, special interests, social needs, and rate of learning. It will utilize flexible organizational patterns to meet these needs. Instructional con-

tacts will be flexible in size, length of contact, and frequency of meeting and membership. They may vary in size from one member to an entire class depending upon the need. The length and frequency of meeting must adjust to the learning rate, specific need, and capacity of the members to attend. Depending upon how many have acquired the desired behavior, the membership of a group may change after any meeting. Some members may require one instructional session for a given skill while others may require several.

Secondly, a good program will concern itself with *well-planned instruction*—not merely self-selection of reading materials and individual conferences, though these are an imperative part. But in addition, it will provide systematic evaluation of progress in all attitude and skill areas of reading with prescribed *instruction* and adequate experiences to insure in each individual full development of areas needing to be strengthened or extended.

In essence, such a program should insure ultimate use of the teacher's instructional time while meeting a maximum number of individual needs.

Uses of basal readers in individualizing reading instruction

This section will be divided into two parts. The first will briefly explain special features of a basal reader that may be used in an individualized reading program. The second will describe uses revealed in various individualized reading programs.

To provide a common basis for reference it should be understood at this point that whenever *basal reader* is used in the remainder of this article, it will include the child's basal text book, the teacher's guide, the workbook, and any supplementary charts, exercise sheets, tests, and cards that accompany the basal program. It will not include

supplementary literature-type books or enrichment readers.

Features of a basal

A basal reader is a product of careful research and study, containing several features that are not commonly found in other sources. Artley (2) explains, "... they secure a balance between systematic and sequential group instruction on the one hand, and free, independent reading and individual activities on the other."

Specifically basal readers bring the following:

1. An identification of important skills to be taught, a general developmental sequence for those skills, and a variety of specific procedures for teaching them (This last item in itself is invaluable.)
2. A wealth of exercises from which a teacher can choose to help the child master the desired ability.
3. A breadth of scope in reading content geared to the application of skills and abilities that have been developed. (The nature of the controlled introduction of vocabulary allows a child opportunity to master given skills with a minimum of frustration. The writer recognizes this feature is considered to be a virtue by some and a weakness by others. The stories, poetry, etc., can also be used in self-selected reading experiences. This inclusion does not infer depth nor the ultimate in quality in all cases at all levels.)
4. A carefully developed bibliography of related selections including short stories, trade and library books, reference materials, and multiple visual and auditory materials.
5. A wide variety of suggested activities for stimulating or extending reading interests. (These include creative expression experiences through art, music, writing, and dramatization; many types of story sharing experiences; and suggested teacher-developed interest centers and bulletin boards.)

In addition, most teacher editions suggest techniques, materials, and activities for meeting individual differences (6, 14, 21, 33, 36, 41, 44, 51).

Uses in individualized programs

To gain the information reported in this section, individualized programs,

articles describing programs, and authors' proposed programs were examined. No attempt was made to determine the relative quality of the studies nor to restrict them to meet a particular definition of individualized reading instruction. All studies examined are not cited in the bibliography as several did not include any use of a basal. The majority, 82 percent, indicated basal materials of one type or another were used. The variety of uses and amount of use varied from program to program.

Blakely and McKay (7), in examining a group of 124 different, individualized programs in Iowa, reported that 75 percent of the group used basal readers in their individualized programs.

Use generally fell into one or more of the six following areas.

Self-selection source (4, 29, 38, 52). A commonly reported use was that of having basal readers become one of the many types of material from which children could choose to read. Some required the child to read the entire book while others allowed the child to read those stories which he chose.

Skill lesson source (13, 16, 32). The use of the basal as a source for a skill lesson was also expressed. Evans stated that "... certain sections of the basic readers and the content books can be effectively used to teach the word-study skills."

An exercise or application source (13, 16, 18, 32). The particular use of workbooks and exercises from teacher's guides was frequently mentioned. Some had students work through workbooks while others disassembled the workbooks and used individual exercises as needed. Still others, after studying the workbooks and exercises, compiled listings of sources for skill exercises by book and page.

Common source for discussion and skill application (13, 24, 37, 40, 52). Harward (22) in a study of develop-

ing creative and critical levels of comprehension skills discovered that in an individualized program children who had only a one-to-one contact did not respond nearly so well on creative or critical level questions as did children who were grouped to discuss common material. He recommended various groupings for discussions of common materials to develop creative and critical levels of thinking. Others suggested that a common source of a selection in a basal could be used for teaching, developing, and applying oral reading as well as other common needed reading skills.

To start the child in reading (10, 35, 49). Three sources suggested that to initiate an individualized program in the first grades it would be simplest to get the child started in reading with a basal program. Jeanette Veatch (49) stated simply "... an inquiry as to how the teachers of the experimental [individualized] groups taught beginning reading is pertinent. The basal programs here are well laid out, whether or not one agrees with them."

A screening device (16, 29). Because basal readers are graduated in difficulty of readability and are generally accepted as representative of an "average" stage of development for a given grade, they can serve as a screening "bench mark" by which the child's progress can be measured. Essentially, they can assist a teacher in identifying the child's approximate reading level and, depending upon the teacher's skill, may reveal certain word perception, comprehension, and fluency skill weaknesses.

Two procedures are suggested. In one, the child is merely allowed to read independently parts of several readers on differing levels until he gravitates to a comfortable level. The teacher then listens to the child read from the reader and determines whether he can handle more difficult material, is well placed, or should return to an easier

level. A more-structured but still informal procedure directs the child to read orally paragraphs from progressively more and more difficult readers until he reaches a frustrational level. Each paragraph reading is followed by questions to check comprehension, and a check list of errors may be used during the reading. An alternate procedure to the latter is to construct an informal reading inventory from basal reader selections.

A review of selected individualized programs featuring the use of basal readers

The discussion that follows spotlights three different types of individualized reading programs that are developed around basal readers. The first program demonstrates the *multilevel-step* approach. The second exemplifies individualizing by adjusting the level of ability and rate of progress through a basal. The third includes adjusting to ability and interest levels as well as individual skill needs and rate of learning.

A nongraded approach

In *The First R* Austin (3) reports on nongraded approaches used to meet individual differences. In the reported program children were placed in a primary unit in which they were allowed to progress through an equivalent to six semesters of primary grades at their own rate. This rate was restricted to a maximum of eight semesters and a minimum of four. The length of time spent by each child depended on his academic and social readiness, as well as his rate of learning.

With respect to the reading progress of a child, a pattern of twelve progressive levels of achievement has been established. Beginning in P¹ they include the following:

- Level 1 prereading
- Level 2 chart reading
- Level 3 preprimer

Level 4	easy primer
Level 5	hard primer
Level 6	easy first reader
Level 7	hard first reader
Level 8	easy second reader
Level 9	hard second reader
Level 10	easy third reader
Level 11	hard third reader
Level 12	transitional reader (3)

Each child started at level 1 and progressed upward through the levels. The date at which he completed any given level was indicated on an individual accumulative reading record, and a grade was given for comparative success in specific areas of skill development.

At the end of each semester the children were regrouped according to the level to which they had progressed during the semester. This procedure continued until the child had completed all twelve levels or had been in the program for the eight semesters.

It should be recognized that this type of program meets only one characteristic of an individualized program: self pacing, and even that is somewhat restricted. It lacks accommodation for individual interests or instruction in specific individual skill needs. Unless flexible subgrouping, individual conferencing, and some self-selection are included, such a program degenerates into a typical rigid grouping situation.

The Milne program (30)

This approach was based on meeting needs primarily through adjusting to reading levels and rate of progress at the intermediate grades. Each student was launched into the basal at his instructional reading level and allowed to progress at his own rate and according to his ability. The only time students were regrouped was when a common problem developed or where group experiences would help a certain group.

To develop the necessary reading students were given one or two

work sheets with each story in the basal text. One sheet was designed to develop word meaning, structural analysis, phonetic analysis, and context clues. Following the completion and checking of this material, the student read the corresponding story in the text. The second work sheet was then used to develop comprehension and reference skills.

Approximately forty-five minutes were spent each day in the basal text. An additional fifteen minutes were spent in free reading, as directed by individual interest. During this time small group instruction or individual conferences took place. During the conference the teacher listened to the child read, checked various skills, and tried to correct weaknesses. If weaknesses were detected, students were assigned workbook sheets to strengthen the skill. Answer sheets were provided for immediate self-checking.

A record was kept on each child's progress in the basic text and on his interest reading activities. When the two work sheets accompanying the story were satisfactorily completed, the record was marked accordingly. If the work was not done satisfactorily, additional review was required of the student.

Continuing growth in reading with flexible modular scheduling

The following discussion outlines a program under development in the intermediate grades at the Grandview School in Provo, Utah. In its initial stages, it has been tested only on two pilot experiments.

This program attempts

1. To place students at their individual reading level and allow self-passing according to ability,
2. To provide instruction in individual skill needs, and
3. To encourage extensive self-selection of reading materials.

To initiate the program, children are screened to determine their independent and instructional reading level and their specific skill development. This information is recorded by the child's name in one of three manual record books. The manual and record for reading levels, comprehension, and study skills; the manual and record for word perception skills, or the manual and record for self-selected reading.

The manual of the first book contains a discussion of reading levels, a listing of comprehension skills, and a sequential listing of study skills. The record section contains a place for indicating a child's reading level, material read, and date of progress and check columns for individual skill progress.

The manual for word perception provides a sequential listing of word perception principles. The record section includes space for each child's name with a multiple check space for each skill following the name.

Name
John H

Skill A		Skill B		Skill C	
2/12		2/12	2/21		

The date of testing is entered on screening for a skill. If the student scores satisfactorily, the section is colored in with pencil to indicate knowledge of the skill. If his score is not satisfactory, he is prescribed instruction and subsequently tested again. This procedure continues until the skill is acquired.

The manual for self-selection reading contains a discussion of types and levels of materials, activities and experiences for stimulating interest and sharing materials, and attitudes, tastes, and varied interest to develop in the reader. The record section provides a record of the amount, levels, and areas of reading for each child.

After initial screening and completing of the record, the teacher develops a modular schedule for a week to two weeks. A sample of a one-week schedule might look like the one in Figure 1.

FIGURE 1
A WEEKLY SCHEDULE

	Monday	Tuesday	Wednesday	Thursday	Friday
*I	A	C	A	C	*III
	B	D	B	E	
*II	1		1	6	
	2	4	2		
	3	5	3	7	

*I. This thirty minute block is devoted to meeting various groups or individuals for work in comprehension and study skills at particular reading levels. Common selections from a basal reader, supplemental trade or library reading materials, or special materials, such as newspapers, magazines, or subject texts, etc., are used here de-

pending upon the purpose of the lesson. The letters represent different groups. Some of this time may be spent in individual conferences.

*II. This forty-five minute block of time is flexibly scheduled to meet various size groups for word perception skill development and some full class instruction in library

skills when it is appropriate. Both lessons and exercises for skill development were taken from the teacher's guide and workbooks. A comprehensive file system is being developed with individual folders for each skill. On the front of the folder will be listed sources for lessons by company, text, and page. Inside of the file will be workbook exercises for applying the skill.

In both of the previously mentioned situations the size and membership of each group change from week to week as does the skill being taught or applied.

When children are not meeting with a particular group during these two blocks of time, they complete assignments related to their instructional contacts or read self-selected materials.

*III. This period of time is devoted to individual conferencing; screening; special activities for stimulating interest in reading, such as, dramatization, sharing stories in small groups or with buddies, book discussions, developing murals or dioramas; or additional independent recreational reading.

The program requires continued evaluation, regrouping, and prescriptive teaching.

Please recognize that these three reviews have not described each program in detail but have attempted to reflect an organization of the program and the use to which basal readers have been employed.

Summarization

In conclusion, it is recognized that all programs have not been examined. Perhaps a favorite has been omitted. But on the basis of those programs reviewed, evidence portrays that basal readers can be effectively used in individualized reading programs. They can be used as

1. A self-selection source
2. A skill lesson source
3. An exercise or application source
4. A common source for discussion and skill application
5. A program in which to start the child in reading
6. As a screening device

An examination of three different programs exemplifying differing degrees of individualization revealed varying types and amounts of use

Perhaps Gray (17) and Witty (53) best summarize the role of basal readers in individualized reading instruction:

"In my judgment progress lies not in the adoption of a so-called 'single

package' solution but in the development of a flexible pattern which utilizes the advantages of both group and individualized instruction and the use of both common and diversified materials."

"The basal text will be used and adapted as a dependable guide and an efficient plan for insuring the acquisition of basic skills It is necessary, therefore, for teachers to select 'basal materials' with care and to use them judiciously to meet individual and group needs."

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PROBLEMS OF GIFTED, DISADVANTAGED, AND RETARDED READERS

A Reading Program for Gifted Children in the Primary Grades

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EDUCATORS TODAY face an all-important challenge in providing for the reading needs of gifted students in the elementary grades. The nation as a whole tends to lose most when pupil capability is high and his reading achievement, low.

In the *Harvard Reading Report*, Austin et al (1) indicates that while some educators seemed aware of the need to do something about superior readers, there was little evidence that much of any consequence was being done. Her conclusion was based on the interviews the investigator conducted in which respondents from twenty-nine of fifty-one school systems indicated that bright readers in the classrooms received the *least* instructional emphasis. In only one instance did the replies from a school system say that instructional emphasis for the talented was greater than for any other range of pupils. Based on these and other findings, all teachers, administrators, reading consultants, and other members of the school staff must obviously be concerned with the need for some action to be taken early in the elementary grades to effectively identify and challenge the reading potential of gifted pupils through proper motivation, methods, and materials.

Identification of gifted pupils

In developing a reading program for gifted pupils, it is important that one

identify these children through a variety of methods.

In some school systems, the identification of gifted children does not create a problem for the classroom teacher since they have already been examined using formal and informal measures and placed in special schools and classes.

In the primary grades, much information can be obtained through teacher observation, cumulative records, standardized individual and group tests of mental ability, and other informal tests and procedures, such as, the results of memory games and contests.

Through informal observation primary grade teachers can determine the bright child who possesses a large speaking vocabulary, retains much of what he sees and hears without a great deal of drill, and performs difficult mental tasks, such as, being able to reason things out, generalize, solve problems with ease, and recognize relationships. Young gifted pupils also often possess a wide range of interests and are very curious and respond quickly in class. They are often very original in their thinking and can often do work one to two years above that of their classmates. They often have a high capacity for listening to oral directions and are able to note details within the stories they tell, in the re-

ports they give, and in the pictures they paint. It is important to note that the child who exhibits only one of the above characteristics would not likely be considered a bright pupil as opposed to one who possesses many of the above characteristics.

Standardized group tests of mental ability should also be used as a supplement to teacher observation in the identification process. Whenever possible, a potentially bright pupil should be given an individual intelligence test, such as, the Revised Stanford-Binet, Form L-M (Houghton Mifflin) or the Wechsler Intelligence Scale for Children, (Psychological Corporation).

One might also consider certain reading readiness tests such as the new Gates MacGinitie Readiness Skills Tests (Bureau of Publications, Teachers College, Columbia University) when attempting to obtain an estimate of general intelligence since research has indicated a high correlation between intelligence and reading readiness test performance.

Very often standardized achievement test scores from such tests as the SRA Achievement Series (Science Research Associates) of the California Achievement Tests (California Test Bureau) may provide a clue to potential giftedness at the primary level. These tests may reveal consistent scores in several areas such as reading, math, or science that may be two or more grades beyond the subject's present level. These achievement tests may also be used to discover certain academic disabilities in bright children and point the way for remedial work or special emphasis in teaching. If the score in reading on an achievement battery is low, a more diagnostic reading test might be given to further pinpoint the gifted underachiever's strengths and weaknesses in reading. Potential gifted underachievers can also be identified through systematic observation of the physical, social, and

psychological factors which may cause or contribute to underachievement in reading. A comparison of the bright pupil's listening ability and reading ability as determined either formally or informally may give some insight as to whether the pupil is reading up to his capacity if standardized reading and intelligence test scores are considered invalid or unavailable.

During the process of identification it is important to remember that the gifted pupil should be selected *only* on the basis of all available data, not merely on an IQ score obtained from a group test of intelligence.

Essential principles of instruction

In attempting to provide a stimulating and challenging reading program for gifted readers at the primary level, it may be essential to consider the following principles since these children's reading needs do vary somewhat from other average or slow learning pupils:

1. Emphasis must be placed on individualizing instruction for the gifted pupil. Differentiation of instruction is the hallmark of an effective reading program for this learner. The practice of lockstep instruction is deadly for any student and particularly so for the gifted student.

2. The gifted pupil is often more capable of self-directed learning. He may want to go ahead under his own steam in reading if he is provided with some very simple directions and adequate materials. He often does not require the step-by-step instruction other students need.

3. The gifted pupil at the primary level also needs flexible reading assignments. The pupil who is forced to conform to general reading assignments for the entire class may become bored and disinterested. If this situation continues over extended periods of time, the gifted child's boredom may become habitual.

4. The gifted pupil may not need an

intensive and extensive readiness program at any level as average and slow-learning pupils may require. The readiness program must be adapted to the bright child and his needs at that time and not to the class in general.

5. The gifted pupil also needs guidance in critical and creative reading skills since his powers to do logical and critical thinking may easily become much greater than the average student's.

6. Since the gifted reader often can think, generalize, and solve problems at a higher level than other children can, he must be challenged constantly if learning is to take place and interest maintained. Emphasis on drill in reading should be avoided. The gifted child may need less participation in class-wide drills, in workbooks, or in readers that have very limited value and appeal.

7. Since the gifted child at the primary level can gain a great deal of self-fulfillment through reading, instruction should not only assist him in developing information-gathering skills but also in becoming a confident happy individual by enlarging his pleasure in reading.

8. The gifted pupil should not be penalized by expecting him to complete huge assignments merely because of his potential. More of the same is not what is needed. An important consideration in all the reading he is required to do should be quality and not quantity.

9. The gifted pupil frequently has a longer attention span than the average learner. Therefore, one may be able to teach him for longer periods of time. He often does not require as many repetitions when mechanical or other reading skills are presented as other children in the classroom may need.

10. For the gifted pupil emphasis during reading instruction should be placed more on inductive rather than

deductive instruction. Reading instruction should aim at comprehension of broad principles rather than the accumulation of detailed facts for these students.

11. The gifted pupil often displays more diversified reading interests than do other pupils. Teachers, therefore, should build on these interests during reading instruction.

Bearing these basic principles of instruction in mind, reading should become more interesting and challenging for these pupils in the primary grades.

Instructional materials and methods

As indicated in the preceding section, instructional materials as well as techniques must be individualized for these pupils. A wide variety of thought-provoking materials are necessary ingredients in a well-designed primary reading program for gifted students. As he gains in reading skill during the beginning stages of reading instruction, an ever increasing range of reading material must be made available. It is important that the classroom library and the central library have current reading material for gifted pupils.

It is very important that materials be selected on various levels of difficulty to challenge the most advanced readers in the classroom. A few copies of a number of different kinds of skill books for developing word recognition skills and other materials dealing with critical reading skills should be available for those gifted children who need this development. These materials might be separated according to exercises, classified, and filed under different headings for use by bright pupils. By developing a kind of "critical reading lab" of this kind bright pupils can be challenged in their ability to do logical and critical thinking. Enrichment programs, such as the new *Sights and Sounds Program* (Random House), trains beginning readers in

reading and listening through a wide variety of books, accompanying tape recordings, and listening posts. *The Carousel Books* (L. W. Singer) offer gifted readers a completely individualized program that stresses literary appreciation and critical evaluation which should provide the challenge they seek. Each box in the Carousel program contains for each book a set of discussion cards which list key words and questions that can be used for teacher-pupil conferences. The *Owl Series* (Holt, Rinehart and Winston) should also supplement and extend the bright child's learning in science, math, literature, and social studies. All these materials should certainly broaden the scope of many existing reading programs and provide the necessary enrichment for the gifted at the primary level.

Many bright pupils at this level also enjoy the challenge of locating words, learning the country of origin, and ascertaining meanings. With the gifted pupil's deeper interest in the historical development of language books like Epstein's *First Book of Words* (Franklin Watts, Inc.) and the Lairds' *Tree of Language* (World Publishing Co.) should have appeal in the upper primary grades. Lower primary bright youngsters would enjoy Krauss' *A Hole is to Dig* (Harper) and *Pop-Up Sound Alikes* (Random House). Another book telling what words are and what they can mean to lower primary youngsters is Rands' *Sparkle and Spin A Book About Words* (Harcourt, Brace and World). Bright pupils should be given an opportunity to explore the meaning of foreign words which are sometimes listed at the back of basal readers and other trade books. Further individualized vocabulary study can be done by using newspapers, magazines, pupil-selected books, and content area materials.

The "experience" approach is an-

other valuable technique to use with bright underachieving pupils in developing vocabulary. By capitalizing on their varied interests, teachers can develop experience stories. The bright underachiever will evidence enthusiasm and enjoyment if he has a part in the preparation of his instructional materials as his vocabulary increases.

Since gifted pupils can be challenged to do more logical and critical thinking in the early grades, a balanced program should also provide instruction and materials which will allow for further development of these abilities. For example, pupils might compare two different new articles on a subject. Other gifted children might compare various biographies and fictionalized stories about famous individuals.

In the primary grades teachers, silently adding some untrue statements, can give an oral account of a story that the children have read. As soon as bright pupils hear something that is not true, they can clap or raise their hands and supply the correct answer or tell on what basis they know the statement to be false.

Provisions for critical reaction of books read should also be a part of the primary program. In preparing an oral or written report, bright pupils should be encouraged to include a few evaluative comments or opinions on the merits or demerits of a particular book. Book evaluation could be based on criteria which the child may have established himself or in conjunction with his peers.

Several specific lessons should be included on teaching such study skills as outlining, summarizing, using a table of contents, index, and glossaries. These lessons are especially valuable for bright pupils who want to work independently on some problem or project.

Bright youngsters in the primary grades also need an opportunity to balance their reading interests since many

tend to concentrate too much reading in a single area. This tendency sometimes appears in an area such as science and other informational type reading. With this in mind it is certainly desirable to have a wide variety of books accessible to stimulate these bright children to read in other areas. Geboe (2) found that a program of folklore reading was very effective for superior readers in the third grade. In her report, folklore was confined to the reading of fairy tales, fables, and myths.

Informal book talks by other classmates should encourage others to read these books and expand interests. Attractive book displays and colorful exhibits of book jackets, which are changed regularly, help to broaden interests.

Time must also be provided for the sharing of books. This activity can be done most effectively at the primary level through radio and television plays, puppet shows, flannel board stories, tape recorded stories and reports, dioramas and fairy tale dramatization.

Children's literature also offers a wealth of stories which will stimulate the creative writing ability of these students. The teacher may want to read part of a book, stop at an exciting point, and have pupils write their own endings. Other story starters, such as, "If I hibernated . . .," "If I were a teacher . . .," "If I invented . . .," "If I discovered . . .," "If I followed a bumble bee . . ." should spark the creative imaginations of many gifted youngsters.

With the ideas presented in this paper, it is hoped that teachers, reading consultants, and administrators will be in a better position to recognize and aid bright underachievers reading below grade level, those reading at their present grade level, and those reading two or more years beyond their grade placement. This nation's future depends on how teachers have

met the challenges of the bright pupils today.

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A Reading Program for Gifted Children in the Middle Grades

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THE GOALS OF READING instruction for the gifted child are basically the same as for the pupil of any degree of ability. The gifted child's potential differentiates him from pupils of lower ability in at least two major ways: one, in the quality of his learning; and two, in the rapidity with which it is possible for him to gain control of the skills he is taught. The nature of his reading needs also may differentiate him from the normal pupil; as his maturing mentality and ability increase the depth and breadth of his intellectual interests, his need for word recognition, comprehension, and interpretation skills of a high order are demonstrated.

Available evidence indicates that gifted pupils tend to develop some reading skills at a level and speed commensurate with their mental age and ability. This case is not true for each individual; there is adequate evidence that many pupils of high ability fail to develop adequate skills of many types.

For these latter pupils, an adequate remedial or corrective program is requisite. Generally, their failure to achieve is demonstrated by lack of adequate word recognition skills, rather than by failure to comprehend the more obvious material which they read.

This is not to say that they fully comprehend the material which they cover; the gifted pupil probably is relatively more retarded in the total comprehension of content than are his age-mates because the traditional reading program has made little effort to maximize his potential.

Word recognition skills. It is desirable that all pupils develop word recognition skills commensurate with their ability or within a range which is practicable in terms of the grouping practices of particular classrooms or schools. Until this goal has been achieved, no thought should be given to transferring a pupil from a program which places major stress on developing word recognition skills. As he works in a traditional program, recognition of the ability of the gifted individual to generalize upon fewer experiences and of his ability to learn with much less drill than is necessary for the normal child should be considered. Appropriate enrichment activities should be assured.

Development of comprehension. Comprehension is more than an understanding of the literal content of the material read; it involves interpretation, extrapolation, synthesis or internalization, and use. The degree of retardation of the pupil—the measure of his underachievement—will be most marked in areas other than literal comprehension. Since standardized tests of reading skill do not ordinarily evaluate high level comprehension skills, the degree of underachievement is not recognized by many teachers, administrators, and parents—nor by the pupils themselves.

Other goals for reading instruction. With certain modifications, some of the goals of instruction in the junior and senior high schools are appropriate to the elementary school pupil whose reading skills approach his potential. However, the development of skills inherent in such a program

should be through *materials or content* appropriate to the interests and experiences of the pupil using them. Books appropriate to the social interests of older pupils should not provide the content for elementary school reading instruction, however gifted the pupils may be. A great body of excellently written children's literature is available.

From both contemporary and classical children's books can be derived the skills, knowledge, and understanding of various types and aspects of literature. The pupil can be taught to analyze the motives of fictional characters; to follow the development of plot, recognize theme, and interpret mood; and to analyze the author's purpose, his organization, his personality, and his style. The pupil can be taught the skills which permit him to understand various types of poetry; verse and stanza forms, figurative language, symbolism, implications, theme or central purpose, and tone.

From a study of appropriate children's literature, pupils can gain insight into human behavior, observe influences of environment on character, understand other times and places, and evaluate the conduct of real or fictional people on the basis of accepted standards of behavior.

Critical thinking skills of very high order can be developed through the study of literature and resource books of various types. Interest, knowledge, and understanding of history, science, and the arts can be developed using literature of these content areas for instruction in reading.

A suggested program. Assuming that the regular reading instructional groups can accommodate the gifted pupil who is reading at or who is reading one year above grade level, it is recommended that special provision be made for the pupil whose independent reading level is two or more levels above grade placement. Literary ma-

materials, rather than a basal reader, should be used.

A Reading Program for Gifted Students in the Senior High School

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A READING PROGRAM for the intellectually gifted student must be wide enough in scope and flexible enough in programing to be of value to the individual. It must be formed for each student individually, and it must be planned so that each pupil will benefit from it.

In a reading program of this nature, each student must assume the opportunity, responsibility, and initiative in developing and evaluating the program. The teacher, in this instance, should only be the guide and adviser in directing, channelling, and aiding each student to prepare a course of study in reading that will not only widen his scope of interests and accelerate his speed of reading but will also be useful as a means of developing his creative powers, critical aplomb, and analytical thinking.

A worthwhile reading program for the gifted student must help this individual to enlarge his range of interests, knowledge, and ideas. The program that would be of interest and value to this type of student should be supplemental to his assigned classes. In this way reading will become more meaningful and vital.

High school gifted students must not be grouped in one reading class. At this age the student's interests are becoming more varied and more positive. It is most important that this variance be encouraged and developed.

Because of the gifted pupil's unusual abilities, variety of interests, and colossal intellectual curiosity, the reading program must satisfy each individual. The program must be extensive enough to interest and satisfy the quick-learning ability of the gifted student. It must aim to stimulate and increase his natural search and quest for knowledge. In other words, a reading program for the intellectually advanced student must constantly challenge him mentally.

A reading program for the high school gifted student must drastically differ from the conventional characteristics of the average reading program. This course of study must appeal to the gifted student because it is challenging, flexible, and broad in scope.

A reading program for the gifted high school pupil must be formed so each individual is afforded every opportunity to seek, and search, and find. Each student must be given the freedom to advance his particular interests, to use initiative and originality in projects, and never to be thwarted in his further search of ideas and knowledge. With such a program the gifted student will learn to draw conclusions, form opinions, and develop, in general, a more mature way of thinking.

To be able to challenge the superior student in a reading program, it is necessary that the instructor know and understand as much as possible about each pupil. He must make a thorough study of each student's attitude toward school, home, and friends. The teacher must try to know the pupil's ambitions, hobbies, and thought process. With this information a reading teacher is in a better position to guide and channel a reading program for the individual. The teacher will be better able to guide and direct the gifted child toward the fulfillment of his ambitions and aspirations.

Reading teachers of the gifted student must be well informed and inter-

ested in local and world affairs. The teacher should be skillful in presenting reading materials to the pupils. At all times the pupils should respect and admire the reading teacher for his ability as an instructor and for his knowledge of books and their contents.

The gifted student suffers the stress and pressure of the adolescent years as greatly as, and perhaps even more severely than, the average teenager does. He experiences the same emotional, moral, and social demands as any other person his age. This gifted pupil needs guidance, encouragement, and counseling—as do his peers. Often a gifted student will be a loner or a recluse from his classmates because of his superior mind. Many times he is ridiculed and made to feel an outcast by other students who are resentful of his intellectual advantages. Because of the gifted one's ability and alertness to learn and his eagerness to express his knowledge, he makes himself unpopular in the eyes of the less-talented student. It is true that many times a superior student will not be well-adjusted socially. This condition can be caused by his very intense love of books and learning, his lack of interest in activities of his fellow students, and his interest in hobbies and activities far beyond his years. A gifted child may segregate himself from his classmates. He is an intellectual success, but he is a social dropout.

How can a reading program appeal and help this type of gifted but maladjusted student? First, it can introduce to him the pleasure of leisure reading. It presents him with the opportunity to read for enjoyment, to read for fun only, and to know that as he is reading it will not be necessary to take a test or write a book report when he has completed the reading material.

Here is where the alert teacher will be able to guide the reading of the individual. The teacher can help the individual student choose books that will

channel his interests into new fields. Through the reading program a student may become more relaxed. He is tense about facts and data, and this reading program could greatly aid the accelerated student to broaden his viewpoint and scope of interest.

The reading program should never allow the gifted child to become so engrossed in books that he cuts himself off from his fellow students and from reality. This type of pupil will benefit greatly by being able to share his reading experiences with others in his group. It is possible to form discussion groups of three-to-five individuals. In these groups each one can discuss his reading and his opinions of what he has read. Others in the group should question or give opinions of the material, also. In forming these discussion groups, the alert teacher should assign people of varied interests to meet together. In this way new horizons will be open to the participants. A gifted student enjoys talking, and he is anxious to express his opinions. A book discussion group affords him the opportunity to relate and discuss his readings. It also gives him the chance to quote or read passages orally to his group. A gifted student tends to give the impression that he is self-sufficient. However, on the most part, he needs and seeks personal experiences of sharing ideas with others. One of the outstanding characteristics of a superior, intelligent pupil is his sense of fairness and sense of humor.

A discussion group in which students express personal opinions is a perfect forum for the gifted one to display his humor and his fairness in accepting the idea of others. It is vastly important that the advantaged student show his knowledge gained from books. There are many outlets for this sharing besides the discussion groups. Panel discussions, tape recordings, and dramatization of materials read are other ways for a student to impart his read-

ing knowledge. The project of sharing materials read may also be subject matter for the superior student. He can display his initiative by forming new concepts of communicating to others the materials he has read.

The gifted student should be trained to discuss, state his views, and to be able to support his ideas. This type of student does not need as much detailed instruction because of his alert mind. However, he does need guidance about seeking and finding materials, about locating needed information, and about reviewing and reporting these findings.

Because of the many demands on the time of the pupil, a reading program should be planned with flexibility. Often times no particular schedule need be followed. The student could arrange to go to the reading center either before or after school or during the school day, if possible.

This reading program should definitely be formed with the idea that the student is working not for a credit or grade but for an individual achievement.

This type of program may be adopted by the small or large school. In the small school, ingenuity on the part of a creative teacher can greatly compensate for the lack of reading equipment and books.

A reading specialist, consultant, or reading teacher is not available in all schools, but this problem may easily be solved by starting the reading program with a creative teacher who is best qualified for this project. Without training in the reading field, the qualifications should call for a teacher who is both willing and enthusiastic about teaching. It is a fact that the teacher determines the interest, progress and success of any class. It is most important for the advancement of the reading program that a superior teacher be appointed in charge of superior students.

It must be understood that just as

all other students do not learn with the same speed and accuracy or evidence the same level of interest in learning neither do gifted students have equal speed, accuracy, or interest in reading. If a student displays an apathetic attitude towards books, then the teacher must overcome this attitude before the student will enjoy or make progress in the reading program.

This task is possible by singling out the indifferent reader and engaging him in challenging conversation, such as on his favorite sport or hobby. Often a teacher can feign ignorance but interest in a subject matter in order to give the student an opportunity to explain or discuss a point. The teacher should make every effort to enrich the reading program for this type of student. If he learns to enjoy reading, then he will have more depth in his educational program and more opportunity to express himself and make a greater contribution to the group through his discussions.

It is the job of the teacher to encourage, motivate, and challenge the enthusiasm and interest of the talented pupil. When the natural curiosity is awakened, the intellectually inquisitive student will quickly advance in reading, if guided. On his own initiative, he will seek out additional reading materials and present this new information to the other students.

Obtaining and distributing an abundant supply of challenging, pertinent reading material often is a problem, especially in small schools and rural communities that do not have access to libraries other than the school's. Even though procuring reading material may be difficult, the teacher should not assume full responsibility for solving this dilemma. It is just such a situation that may be used to stimulate and develop the gifted child's ingenuity. The problem of obtaining additional reading material can become a project in which all the gifted students are re-

sponsible along with the teacher. Book drives, fund drives for additional money for books, circulation of material available, contacting by mail various organizations for literature in particular fields—all of these aspects of finding and obtaining additional reading material may be employed. The more ingenious a student is, the more rewarding the results may be.

The gifted student, under the teacher's supervision, may play an active role in mobilizing community reading resources. He may appeal to civic, religious, and social groups for help in obtaining more school reading material.

The reading teacher should not be completely responsible for the continuation of this project. However, he may be the adviser and guide in the formulation of plans. Such interest on the part of the teacher clearly demonstrates his compassion and ambition for the superior student's reading program. It also demonstrates the teacher's role as a leader who is interested in the furtherance of the student's opportunities, abilities, and efforts.

The reading teacher to be able to guide, advise, and lead his students to higher planes of reading level and ability must always be cognizant of the various social, school, and home pressures which the superior student faces. The instructor must never forget that each student is an individual and each individual faces and solves his problems differently.

To be respected, the teacher must always treat all students and situations in a democratic and fair manner. In this way he will be a model of honesty and democracy for these perceptive and gifted students. The teacher's action will be a guide for his students in fairness and leadership.

For the success of the reading program and for the benefit of the students, the teacher must train and guide each student to assume the responsibility

for his own reading progress. This work should be accomplished by the type and amount of materials being read by the pupil. With this matter as a guide, a teacher may develop a reading program that will aid the student's emotional and intellectual development.

For the complete success of a reading program for the gifted, it is extremely important that the program have the sanction, sympathy, and cooperation of the school's administration, counselors, and teachers. The acceptance of this program by the entire staff will enable the reading teacher to work with all the teachers of the gifted students. Vocabulary and reading assignments may be correlated with the class assignments. In this way classes in the reading center will become more meaningful and useful.

If the entire faculty supports and assumes a personal responsibility for the success of the reading program, it will greatly encourage the importance of this project.

For the success of the project in reading, there must always be time for independent reading and time to encourage independence in the choice of materials to be read. Students should not be pushed or forced to read particular books for free reading. A wise teacher will guide the students to make choices of reading material that will broaden their opinions, increase their knowledge, and open new channels of interest. By this method of freedom in choice of books, creativity on the part of the gifted child will be greatly increased.

Books may be one of the greatest sources of influence in the life of the gifted student. Therefore, it is most important that the talented student develop a keen appreciation of books. It is necessary that the superior student be aware of the tremendous impact books will have on his life.

Many times in the life of a busy, in-

dustrious student, he does not have time to read magazines, periodicals, and newspapers. Assignments in the reading center should be planned to introduce the student to just this type of reading material. An individual pupil should be encouraged to read the daily editorials in the newspaper and to read weekly current magazines of high publication standards.

A reading program for the gifted must have several objectives to be successful. Through the reading program, the student must perfect his reading skills and techniques. The student should learn how to use printed information to its best advantage. He must learn how to outline, summarize, recall, and read critically. The student must acquaint himself with the available sources of reading materials, and he must learn how to use library facilities. The student must also form a deep love and appreciation of good literature.

What is the evaluation of a program of this type? The effect and success of such a program is often difficult to measure. If the academically advantaged student is given greater opportunity to strengthen his educational experiences, to improve his reading techniques, to broaden his knowledge, and to further his ambitions through his assignments in these classes, then it is certain that this reading program for the gifted student in high school has been and will be successful.

Teaching Reading to the Disadvantaged Elementary Pupil

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CONCERN for educating that enigmatic child called the culturally disadvantaged began about ten years ago.

Since that time, progress in research to determine *who* he is has far outstripped investigations to determine *how* he is best educated. Alterations to, and increased quantities of, existing types of reading programs have failed to produce significant changes in the academic achievement of the disadvantaged child, so one must seek another approach which is psychologically sound. It must reflect an understanding of the disadvantaged child's needs, it must be based upon sound principles of child growth and development, and it must begin with the teacher.

No panaceas are presented; just as one treats children as individuals, so must one treat the teachers as individuals. What works for one may not work for another. But teachers need to be aware of new techniques and research to evaluate them in light of personal experiences and situations. Only dedicated, inquisitive, flexible, well-trained teachers can efficiently teach the disadvantaged.

Inadequate language preparation

A culturally disadvantaged child is one who comes from a home environment which does not provide him with experiences that transmit the cultural patterns needed for learning and success in the larger society or its agents (schools) (3). Under no circumstance is cultural disadvantagedness equated with any ethnic or racial group membership. Any child whose early experiences in the home, whose motivation for learning, and whose personal goals handicap him for completing *school* tasks is disadvantaged.

A survey of the literature describing the culturally disadvantaged child's emotional and intellectual characteristics reveals some general patterns (3). One major characteristic of the disadvantaged child is his inadequate language preparation. Language unpreparedness for school is usually found in the child who has extremely limited

language resources to use as aids in conceptualizing his world. The child is usually characterized by 1) a lack of vocal stimulation during infancy, 2) few experiences in conversation with more verbally mature adults in his early years, 3) severely limited opportunities to develop mature cognitive behavior, 4) a greater deficit in the auditory-vocal modality than in the visual-motor areas, and 5) a lack of quantity and quality of verbal expression.

The language background of the disadvantaged child as described is the greatest concern of the classroom teacher. It is true that since one deals with the whole child, one must be aware of his home environment, of the type of neighborhood from which he comes, and of his economic level. Knowing these things helps one to understand the difficulties undermining the child's learning, yet they in themselves do not in any way negate possible learning. Children with emotional and social problems still learn. But the lack of sufficient language behavior to deal with the world will impede learning; therefore, the teacher must be fully cognizant of the American-English language patterns, of normal language development, and of the cultivation of language growth.

Language and the disadvantaged

Bereiter and Englemann (1) succinctly point out how a culturally disadvantaged pupil, having stunted language growth, comes to school inadequately prepared to deal with the variety of sentence patterns he encounters in school. They, equating cultural deprivation with language deprivation, feel that a child who is culturally disadvantaged comes to school lacking those particular kinds of learnings that are important for success in school. He may survive in his own environment, yet he cannot function in school. The language deficiencies the cultur-

ally disadvantaged child has are not just those of vocabulary and grammar, but they are those of the failure to master certain uses of language. To the disadvantaged, it is a not so vital aspect of social behavior which is adequately mastered only for maintaining social relationships and for meeting social and material needs.

In school, language is necessary for obtaining and transmitting information, for monitoring one's behavior, and for carrying on verbal reasoning. Having failed to master these cognitive uses of language, which are the uses of primary importance in school, the disadvantaged child is doomed to failure.

A culturally disadvantaged child treats sentences as giant words which cannot be taken apart and recombined. His language seems to be inflexible and does not take into account the full use of grammar and syntax; this aspect makes it difficult for him to learn new vocabulary and new structures. In essence, the disadvantaged child learns a particular pattern for a particular situation, and he cannot rearrange the language to fit a new situation. Such a child has failed also to master the use of structural words and inflectional endings which are very necessary for expressing and manipulating logical relationships.

Reading

Some authors try to narrowly define reading as a transcoding of visual-motor symbols into oral or suboral sound sequences commonly called decoding. A method of teaching reading which stops with pronouncing words is relying upon the pupils to assemble the total concept from the words alone and assumes that the pupils have acquired the ability to supply the proper grammatical components in meaning as they have learned to speak the language. Therefore, any reading program which is not firmly grounded in language involvement forces failure on the child

who has not learned to manipulate the school oral language and a language similar to that which he will find written in books. Unless, of course, one accepts the definition of reading as only *pronouncing words*.

Throughout the entire elementary school, a reading program based upon a language-involvement approach does not put a child into a reading situation until he has acquired the appropriate prerequisite oral/aural language skills for the reading situation.

A reading program for the disadvantaged child

Language involvement. A reading program for the disadvantaged child is in essence a language-involvement program. The school environment is saturated with the standard American-English language so that the child's language receptors are activated and sensitized allowing him to develop his verbal cognitive skills. The disadvantaged child (who is in reality a non-verbal child) is led, step by step, through the stages of normal language development that he may have missed. This process entails a reliving of the language cycle in order to adequately develop his entire communicative processes. Once the disadvantaged child has gained the language fluency of a typical child his own age, he no longer is deemed "disadvantaged" and is given regular reading instruction.

Meanwhile, as the child is acquiring language facility, he is given familiarity with spoken prose and expository writing. Conversational patterns are not the patterns with which books are written so the disadvantaged child, lacking in exposure to "book talk," must gain this familiarity in order that language development is complete (2).

A language-involvement program is constructed on the premise that children learn by model from adults. No lectures or rules are used. The child, her, herself cognizant of normal

language learning behavior and the structure of the standard American-English dialect, demonstrates pattern after pattern until the child inductively assumes the correct behavioral task.

Then, after the pupil gains oral/aural fluency in utilizing the syntactical patterns of language, he is introduced to their graphic (visual) symbolic representations. Simultaneously with attaining a substantial instantaneous visual-recognition repertoire of the words and phrases in his instantaneous aural-recognition repertoire, the child is guided to an understanding of the phonemic structure of English words.

Experiences. From the very outset of the program, the child is involved with experiences from which his concepts and language grow. Without the prerequisite concept formation guided by the teacher and without the opportunity to communicate orally with his teacher and his peers about the experience, the disadvantaged child is not equipped to tackle the visual symbolization of the experience.

The sources of experiences and concepts to be developed in the elementary grades are the content areas of the social and physical sciences. Steinnler (1) suggests that culture fair material, i.e., culturally unbiased material, be selected for use with the disadvantaged child. Such material does not reflect the value system of any particular social, racial, or ethnic group and has content that is as difficult for a child from one social, racial, or ethnic group as from any other group. Thus, the child is placed in a content-learning situation which does not initially single him out as disadvantaged. His goal is to acquire and transmit this information.

Some of the concept areas which, developed as units of study, provide ample content for the communication of ideas are: letters of the alphabet, days of the week, numeral and number words, colors, seasons, famous people,

shapes, sizes, tastes, smells, sounds, parts of the body, and geographical areas. For a language-involvement program instituted at the intermediate level, the teacher has no dearth of material in social studies, science, and mathematics from which concepts can be culled. Just make the child's school situation one in which he learns information and assimilates language.

Phase one. The child is presented with a highly structured language approach designed after one successfully used in a nursery school setting (1). From models, the child acquires a sense of appropriateness for utilizing language patterns in general situations. Once the child has learned a pattern, he will be expected to carry it out for the remainder of the school period.

The child is taught a language to be used in the school situation. There is no immediate concern if the child does not use this pattern when interacting with his peers outside of school or his home environment.

The child is given a preliminary statement from one of two kinds: 1) identification or 2) classification. Under most circumstances, a series of identifying statements followed by a classifying statement is presented.

Example's:

- a) This is a hammer. (Pointing to the object or picture.)
This is a screwdriver.
This hammer is a tool.
This screwdriver is a tool.
This hammer and screwdriver are tools.
- b) The shovel is in the pail.
The book is in the desk.
The ball is in the box.
- c) Sugar tastes sweet.
Candy is made of sugar.
Candy tastes sweet.

The teacher then begins to develop the different levels of language difficulty, each successively requiring a greater depth of aural, oral, and even-

tually visual (reading and writing) language involvement.

1) Simple verification. The child responds with a *yes* or *no* to a specific question about a situation (related to the identifying statement) perceived by any of his senses.

Example:

- a) Q.: Is this a hammer?
R.: Yes.
- b) Q.: Is the shovel in the pail?
R.: Yes.
- c) Q.: Are the hammer and screwdriver tools?
R.: Yes
- d) Q.: Does this taste sweet?
R.: Yes (or no).

2) Externally-cued verbalization. The child provides a statement which takes its structure from a cue question.

Example:

- a) Q.: What is this tool?
R.: This tool is a hammer.
- b) Q.: What is in the pail?
R.: The shovel is in the pail.
- c) Q.: What are the hammer and and screwdriver?
R.: The hammer and screwdriver are tools.
- d) Q.: What tastes sweet?
R.: Sugar tastes sweet.

3) Internally-cued verbalization. The child provides a statement about a situation without the benefit of the teacher structuring his response.

Only appropriate responses at each level of difficulty are accepted. Whenever the child answers inappropriately, the teacher just repeats the identifying statement and cue until the child assumes the correct response. Twice daily, periods of fifteen-to-twenty minutes of highly structured, intensive language training are developed in this way with the disadvantaged child in a small, flexible group setting.

Phase two. As the language involvement program continues, the em-

phasis shifts to the development of sentence patterns through sentence transformation and sentence expansion. The ground rules are the same though, because model, repetition, and involvement without stated rules or lecturing are the educational process. The disadvantaged child is immersed in a content-learning situation, provided with the language patterns for communica-

ting his ideas to others, and given the oral/visual symbols needed for reasoning the solution to problems.

The sentence expansion and transformation program is developed around the four types of kernel (or basic) sentence patterns and their inversions as identified by the linguists. These kernel sentences are commonly coded:

NV

Plants grow.

NVN

Plants need air.

NVNN or NVNadv.

John gave the plant water.

John watered the plant well.

N (to be) N, or

The water strider is a bug.

N (to be) adj.

The rattlesnake is poisonous.

Basically, sentence expansion and transformation are done to make more interesting or expressive sentences. As the child learns to manipulate, orally and visually, the various parts of the sentence and as he learns to generate new and more interesting ones, he acquires insight into the process of language, thus enabling him to read other

similar constructions.

The stage of sentence expansion requires him to alter sentences by joining two or more sentences or adding elements which answer the questions: *How many? How much? How? When? Where? Which one? Why?* and *What?* For example, the following sequences can be developed:

Some animals find homes.
Some animals build homes.
Green plants need air.
Green plants need sunlight.
Green plants need water.
Some plants grow. *How?*
Ships travel. *How many?*
Where?
When?

Some animals find homes and some animals build homes.
Green plants need air, sunlight, and water.
Some plants grow from seeds.
Some ships travel.
Some ships travel around the earth.
Some ships are always traveling around the earth.

Betty is growing plants.

What kind?

Where?

Why?

Betty is growing different kinds of plants.
Betty is growing different kinds of plants in a jar.

Betty is growing different kinds of plants in a jar because the plants will water themselves.

The process of changing a kernel sentence into a question, a negative sentence, or one beginning with *there* is sentence transformation. For example, some transformations possible are

- a) Some animals hibernate all winter. (NV + when?)
 Some animals do not hibernate all winter. (Negative)
 When do some animals hibernate? (Question)
 There are some animals that hibernate all winter. (Beginning with *there*)
- b) People must work to clean the city.
 Why must people work to clean the city?
 There are people who must work to clean the city.

Spoken texts. The types of sentences used so far in the language-involvement program are of the conversational, narrative variety. The types known as exposition are unlikely to be familiar to the disadvantaged child because of his limited verbal background. So the teacher incorporates into the reading program the opportunity to gain familiarity with this form of the language.

Beginning with the disadvantaged child's first school experience, he is exposed to expository material through oral reading by the teacher, through records, and through tape recordings. Whenever possible, the child has in front of him the text to what he is listening. This condition is possible now because of the great number of book and record combinations being put on the market by trade and basal-text publishing companies.

Of course, the least expensive source of expository readings is the teacher. But, the teacher must be a fluent oral reader with clear, distinct speech. With a little practice, most teachers can qualify. The school can develop its own library of prose readings by recording the ablest teachers.

The benefits of this spoken text phase of the program are that 1) the child gains familiarity with the more formal sentence patterns usually found in texts, 2) the child gains greater knowledge of the larger culture, and 3) the child gets a vicarious experience which will form some of the background for his language and sentence development.

Morphemic structure. Along with the language involvement program, the teacher actuates a sense of the morphemic structure of the English language. The disadvantaged child, as previously stated, treats whole sentences as individual words. The first step, therefore, is in developing a word sense. Exposure, first auditorily and then visually, to all types of word formations allows the child to begin to distinguish the normal pattern of English words. Once the child understands and "feels" what is or is not a word, he then is guided in highly structured lessons through an exploration of individual sounds until he can recognize those of English as opposed to those of other languages.

Example:

a) Orally—

I will say some words: *Bed, Run, Chair, Fly.*

I will now say things that are not words: *Brn, Chmp, Th.*

Dog is 1 word. *Flug* is not a word.

Q.: Is *table* a word?

R.: Yes.

Q.: Tell me, which is a word: *girl* or *hawn*?

R.: *Girl.*

Q.: Tell me something that is (is not) a word.

R.: *Gun (Ch).*

b) Visually—

When Bob rubs the table top with paper, his fingers get warm.

This sentence has twelve words.

The words are /framing the words as they are said/:
When, Bob, Rubs, The, Table, Top, With, Paper, His, Fingers, Get, Warm.

This is a word: /Bob/ *Bob.*

This is a word: /table/ *Table.*

There are two words: /his fingers/ *His fingers.*

This is not a word: /ith/

This is not a word: /nger/

This is a word: /warm/ *Warm.*

Q.: Is this a word? /rubs/

R.: Yes.

Q.: Which is a word: /top/ or /ubs/?

R.: /top/

Q.: Show me something this is (is not) a word.

R.: /when/ -(/wi/)

The teacher's role

The teacher, throughout the language-involvement program, is an intermediary between the child and his world. The teacher selects some experiences, provides some limitations on explorations, creates structure, and activates the child's senses. She interprets some of the child's reactions, acknowledges his perplexities, confirms his conclusions, and disentangles his misconceptions but never expounds, preaches, or moralizes. The language-involvement program succeeds only if the disadvantaged child explores his environment, tests it, reacts to it, labels it, and tries to explain it just as the average child does in his verbally oriented, multi-experiential environment.

Conclusion

The language-involvement program is akin to that used to teach a foreign language. An auditory-linguistic approach to the teaching of standard American-English treats the school language as if it were not native to the disadvantaged child and thereby teaches it as a second language.

The benefits of the language-involvement program are that the child 1) responds to questions, 2) passes along information, and 3) acquires basic sentence patterns and concepts of classifications. As the child learns to manipulate these simple sentence patterns, more complex ones are introduced.

Also, the teacher is in full control of the vocabulary, sentence patterns, and concepts which are presented and developed. She teaches diagnostically so that each child's daily performance is evaluated and appropriate future lessons are planned. The child creates his own pacing for language growth by the ease with which he is able to adopt the various patterns.

Most important of all, the child, with a main purpose to gain knowledge, has no sense of failure—because reading is maintained in proper perspective as just one of the communicative acts.

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Language Patterns of the Disadvantaged Beginning Reader

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SCHOOL PEOPLE in large cities are facing an educational crisis. Part of the crisis stems from the fact that inner-

city children are retarded from two to five years in reading. This fact keeps these children from learning as fast as their suburban counterparts. Even the massive counteraction brought about by increased federal subsidies has failed to overcome the discrepancies. Of course, the problem is not new and has been with large cities for decades, reinforcing itself from generation to generation. Interest in education in inner-city schools postdates the Sputnik era with the demand by the public that all schools improve. With the advent of federal aid involving millions of dollars, many projects and experiments are being carried out. The programs begin with Head Start and continue up through the grades and high schools. Some programs have been very successful, notably Head Start. Others have been less fruitful. In spite of these programs and projects the retardation has lessened little.

It is generally agreed that the weapon for learning is the ability to read effectively, for how else can children and youth get the pertinent information that is required for useful and clear thinking in speaking and writing. How a child gets started in reading will determine to a great degree how well he learns to read in later grades. Most of the efforts in this area have been devoted to devising shortcuts to get inner-city children to understand standard English. Some efforts, notably the Detroit Great Cities Project, have been directed toward writing basal readers more attuned to the life of inner-city children. Most cities, however, are still expecting all of their beginning readers to "play with Dick and Jane or Tom and Betty whose language patterns are not understood by inner-city tots. Disadvantaged children fail to identify with the book characterizations. The book characters differ from the contemporaries around these disadvantaged children in appearance, speech, and behavior.

The teacher, too, uses the same language as the book children. Under these circumstances it is very easy for the disadvantaged child to appear "dumb." It keeps the teacher from calling upon him often. The teacher, in turn, assumes that the child is not very bright and ignores him. In most cases, this is just what the child wants. Thus begins the habit of going through school without much effort or learning. The result is that many children enter high school without the necessary reading ability for successful school work at this level. Many youths become dropouts. Recent research studies have shown that over fifty percent of high school youths drop out of school because they cannot read their assignments.

Far too often, inner-city teachers expect very little from their pupils. This is tragic, for teachers usually get just what they expect from children, if their expectations are realistic. In an experiment in a West Coast school, teachers were given the names of children and were told to expect very rapid progress in the school work of these children. Actually, the names had been secretly selected at random. At the end of the term, tests showed that those who were expected to gain made better progress than others. This was especially true in early grades. Teachers considered these "brighter" children more interesting, appealing, curious, affectionate, and well-adjusted than others. One may ask, "How did the prediction of growth cause growth?" One may answer that this came about by the teacher's attitude: "by what she said, how she said it, by her facial expressions, postures, and perhaps, by her touch the teacher may have communicated . . . that she expected improved intellectual performance" (2). Undoubtedly, the teacher's attitude helped the child to change his *self-image*. This

positive attitude is especially important in teaching beginning reading.

The importance of the teacher's attitude is illustrated again by the work of a Chicago teacher. Mrs. Rhodes at the Foster School heads a team approach of five-, six-, and seven-year-olds in a nongraded school type of organization. Her own area is in the field of language arts. "We have a very individualized language arts program," she said. "We develop a full range of communication skills—listening, writing, reading, and spelling." As the pupils work independently with Mrs. Rhodes and her aide there is a constant hum. "We don't have a quiet classroom," she said. "This is deliberate. We encourage [with high expectations] communication between the students, to give them as much opportunity for experience with language [their own language] as possible." Pupils in other parts of the program are listening to phonograph records and learning to isolate different sounds. They write or dictate original stories. In her room, children learn to read when they are ready. Some five-year-olds learn how to read. Mrs. Rhodes' expectancies are high and the results are good. Children in her room are free to use their own language patterns. Eventually, transfer to basal readers comes easily to her pupils. This type of schoolroom atmosphere is excellent for disadvantaged beginners.

The dialect spoken by Negro children, and some southern whites, is a stumbling block to many children. Too many teachers believe that the speech of the children is slang and they set to work immediately to change the pattern. This attitude on the part of the teacher is wrong. The speech patterns are dialectal and grammatical. The patterns should not be classified as incorrect English and slang. To these children, what they say and how they say it is their language. They will

have to continue using it in many environments outside the school. The English that is heard in the school to them is almost another language and to many it is a second language and has to be treated as such by the teacher. Linguists have often stated that beginning reading should begin with the language patterns of the child. If Mary says, "He be sick," it may be that this pattern sounds all right to her. The teacher needs to tell her that there are other ways of saying it and then introduce a closely related way. Many dialect patterns that children use in their speech are appropriate for writing, which in turn can be used for reading. Once a child has learned to read language which he understands, he can then make a better transition to reading basal readers in standard English. Teachers must learn to understand that the dialects of the South have their own phonology, morphology, and syntax as do other languages. To be effective in beginning reading, teachers must understand this structure. Otherwise there is reciprocal ignorance, which will help neither the teacher nor the pupil. In such cases the result is chaotic. Let's begin where the children are before we show them the "mountain tops" they have never seen. And most disadvantaged children are in the "valleys"—when it comes to reading and the other language arts.

To this idea some teachers say we can't teach children bad English. We don't have to teach them their English; they already know it. My contention is that disadvantaged children will be more understanding if we begin with what they know. It is not the beginning but rather the end result which counts. To begin with standard English and to make disadvantaged children feel that their dialect is wrong is to discourage and frustrate them. This is tragic when it happens at the beginning of one's school career.

Teachers must remember that a white middle-class youngster has one language to contend with, whereas Negro children from marginal areas have two languages and he can't stop using his own language altogether for when he is at home and among his peers, he would be jeered at if he attempted to use the fancy language used in the school.

The child who uses the dialect language of the South, or has been raised among adults and other children who were originally from the South, is limited in scope and background. Children living in poverty do not hear a language rich in expressive patterns. A limited experiential background produces an understanding of limited concepts. The Head Start programs are attempts to enrich the experiential background of children, which later can serve well in the reading program. Even at age four it may be too late, but nevertheless it is a beginning.

The Gary Program may illustrate one type of Head Start project. Although Mrs. Imogene Jones, supervisor for Gary schools, recently stated that Head Start was a step in the right direction, Richard Cook, research consultant, said at the same time that it was a flop. He stated, "Although Head Start has shown some significant gains, it has failed in terms of practical gains. The failure is that we haven't brought about enough change in the ability of a child to learn when he gets into kindergarten and first grade, and so on." In Gary they were able to improve the IQ by six points. He said this gain did not have much effect because children were so low when they came into the program. Mrs. Jones felt that at least the step was in the right direction in that it was a stopgap in the right direction. In explaining the problem of language handicaps Cook put it this way: "This is a lack of development of intelligence due mainly to the lack of development of

language, association with adults, good models of speech, good models for thinking, correction and feedback." Cook identified five pre-Head Start environmental problems:

1. Lack of motivation due to improper teaching procedures on the part of parents
2. A lack of a need to communicate in formal language in an adult-less environment
3. A failure to develop a well-differentiated self-concept
4. Mental retardation, not due to lack of innate qualities, but due to lack of opportunities
5. Improper models of speech

It is readily seen that the Head Start program did not remove the main cause of poor beginning reading. Pupils who enter school after completing Head Start still will have to be approached in the same manner as other disadvantaged children as far as language development is concerned.

Bereiter and Englemann (1) made a study of very low socioeconomic status children who were taught in an intensive, fast-paced and highly-structured program in basic language arts skills, reading and arithmetic, plus singing. The children moved from teacher to teacher every fifteen or twenty minutes. Because children came from poor language functioning areas, language was maintained as a means of maintaining social relationships in satisfying material needs and not for obtaining and transmitting information or monitoring one's own behavior. The fundamental goal of this program was to get children ready for learning tasks. Heavy emphasis was placed on getting these children to understand a teaching language. The language of the disadvantaged, according to project directors, seems to consist not of distinct words but rather of whole phrases or sentences that function like "giant" words. According to Jean Osborn (4), a teacher at the school,

these "giant" words are not taken apart by the child and recombined and transformed into questions. If this theory is correct, the child will have much difficulty dealing with sentences as a sequence of meaningful parts. Osborn lists the following characteristics of the language of disadvantaged four-year-olds:

1. He omits articles, prepositions, conjunctions, and short verbs from statements.
2. He does not understand the function of *not* in a sentence.
3. He cannot produce plural statements correctly and cannot produce actions implied by plural statements.
4. He cannot use simple tenses to describe present, past, and future action.
5. He is able to use *he* and *she* for male and female figures but cannot use the pronoun *it* to refer to inanimate objects.
6. He does not understand many of the common prepositions and conjunctions, such as *between* and *or*.
7. He can often perform direction but is unable to describe what he has done.
8. He does not realize that two or more words can describe one object.

The main effort of the Bereiter and Englemann program is to overcome the above difficulties and to give pupils much teacher-monitored practice. On the Wide-Range Achievement Test better than two thirds of the fifteen prekindergarten children scored at first grade levels in reading and second grade levels in arithmetic. Gain in IQ averaged seven points. Long-range studies will determine if the gains will be permanent.

Another significant study on the subject was conducted by Gray and Klaus (3) in 1965. The purpose of their program was to offset the pro-

gressive retardation observed in disadvantaged children. Sixty children from an upper South city and a comparative group in a similar town nearby were used in the study. Three groups were instituted in the target city. The first group had three 10-week summer training experiences with between-session training by a home and school visitor. The second group had a similar program for two consecutive summers before entering first grade. The third group was a comparison group. The two major classes of variables were emphasized: aptitudes for achievement and attitudes toward achievement. The approach to learning was based on reinforcement. Modest means of 9 to 10 IQ points were obtained over the control groups. Follow-up studies are now being carried out. If progressive retardation can be stopped, even such modest gains are worthwhile.

Spiker, Hodges, and McCandless (5) began a three year study in 1964. The children selected for the study scored between 50 and 85 on the Binet and came from marginal areas. Four groups of 15 children each were formed: an experimental preschool group, a traditional kindergarten group, a regular control group in the target town, and a diffusion control group from surrounding towns. The curriculum of the experimental group involved the use of many different sense modalities to maximize sensory input, the use of review to achieve overlearning, and the teaching of labeling language before attempting more sophisticated language patterns. The curriculum was individualized on the basis of diagnosis of ocular tracking, motivation, socialization, and fine and gross motor coordination. At the end of the first year there was a gain of 18 points on the Binet IQ scale for the experimental group. This was greater than that of the home control group but not that of the kindergarten group.

In the first grade, the groups were no longer significantly different. Results were similar on the criterion measures. The authors suggest that the result of a pervasive tendency to regress toward the mean in such a disparate population may be the cause. Could the loss come from poor first grade experience? More research will tell.

The several research studies cited mention ways of overcoming the roadblocks that hamper disadvantaged children with school work, including reading. Ways of enriching the backgrounds of these marginal children have been suggested and tried with some success. Teachers of disadvantaged children will find that in spite of such programs and projects children will still enter first grade with severe language handicaps which hinder learning to read. It is imperative that teachers of children living in marginal areas do some action research on their own. Informal studies strengthened by formal research may help in solving the crisis which now exists in many ghetto schools.

Because language patterns of many inner-city children are dialectal and not "bad English" as too many teachers have presupposed, it would seem very natural to begin reading by utilizing such patterns through the use of charts and other language experience activities. Since the language and the content would come directly from the children themselves, reading lessons would seem simplified. The vocabulary would be known and so would the concepts expressed. Associating the visual symbols with ideas expressed by children in their own language is not difficult. This approach makes it easy for children to identify with the school and the teacher thus creating positive attitudes.

A start could be made by using first the basic sentences used by the children and from these expressions developing acceptable transformations

which could lead to more acceptable language patterns. This type of change seems logical and more natural to children and would help them to use the "new dialect," standard English. Children should not be forced to give up their own natural language patterns for they need to use such patterns in the home and community environment in which they find themselves. In time, after much practice with the teacher and other children, and with additional practice using such media as tape recorders and Language Masters, a child will become more accustomed to the language which seemed so strange when he first entered school. When such a point is reached (and it may vary among children) it is time to transfer to the use of basal texts or to reading of informal trade books. Trade books, however, should be selected with care so that they contain materials with which children can identify, including illustrations as well as text.

A variety of activities should supplement the formal work of making the changeover. Such activities should include many of the reading readiness exercises and games. Auditory and visual training should be part of the program as should the development of directionality, eye and hand coordination, and motor control. The use of creative dramatics, rhyming from pictures, interpreting pictures, creative rhythms, school journeys, and the like, will reinforce language development. Above all, children should be encouraged to make suggestions on ways of developing new games which require the use of language. The more repetitive such games are, the better will be the results.

Interest and a sound knowledge on the part of the teacher on how to improve the language patterns of disadvantaged children will bring about big dividends. As successes increase, teachers should redouble their efforts

in this vital and important aspect of language development.

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Dialectal Variance Interferes with Reading Instruction

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PERHAPS the most venerable aspect of sophisticated linguistic study is dialectology. In spite of its venerability, it is only very recently that the relevance of dialectological study to instruction in reading has come to the attention of teachers of reading. For instance, reading teachers are coming to realize that much of the general difficulty in teaching the so-called "disadvantaged child" could well stem from a fact that may be stated without reservation . . . and that is that the teacher speaks *one* language and the child, essentially *another*. In a word, the teacher is trying to teach the child to *read* a language which the child does not *spea*k. And more specifically to the point, the language *spoken* by the teacher in these attempts differs decidedly from the language *understood* by the child, and the language spoken by the child is often incomprehensible to or misunder-

stood by the teacher. This is no over-simplification whatsoever, for though both teacher and student ostensibly "speak English," the fact of the matter is that teacher and pupil dialects are often so different from each other that little or no communication takes place. The major goal of the teacher of reading is clear enough—to teach the child to read; but in the accomplishment of this goal, the concern of the teacher is with *language* as well as with *reading*. This concern with language entails providing the child with a command of a *brand* of language that will not meet with social objection. However, due to teaching procedures commonly employed, the burden of language accomplishment presently falls almost entirely on the child. Initial progress can be made at an accelerated rate when the teacher is familiar with the details of the dialect-to-be-replaced and when the teacher's attitude toward that dialect is wholesome—and thus useful—rather than scornful—and thus injurious. It is hoped that the information offered in this paper will justify and inspire changes in teacher-learning, teaching-procedure, and teacher-attitude and thus bring about new efficiency of instruction and guarantee greater extension of accomplishment.

In any discussion of this sort, misunderstanding is introduced between author and audience as an immediate result of differing values attached to terminology shared *in name only* by said author and reader. Permit an attempt to specify these remarks as follows: by "dialectal variance" is intended the variation in syntax, meaning, and pronunciation which characterizes one group of speakers and often serves to distinguish that group from some other—or *all other*—groups; by "dialectology" is intended the study of these variations and variants by linguistic scientists content in the areas of phonology, accents, mor-

phology, grammar, and lexicography; and by "phonology" is intended the body of phonetic and phonemic information *implicit* with *phonic* considerations but rarely demonstrated by exponents of phonics *per se*. For convenience of presentation, this paper is limited to *phonological* considerations, a fact which is not meant to imply that dialectal variance of the sort under scrutiny is not at once operative on other linguistic planes.

It is clearly not common knowledge that perhaps the most consistent and reliable and valid of the subdisciplines of linguistics is dialectology. The American Dialect Society is the oldest and most consistent linguistics association. The Linguistic Atlas projects are the most objective linguistic studies. The awareness of "regionalism" as a specific aspect of "dialectalism" is well established. It would be well to review or examine or perhaps introduce some of the particulars explicit with dialect study and with the really very complex science of phonetics.

For at least a hundred years, phoneticians have observed—and instrumental phonetics has corroborated, variously through this period—that no two speakers produce physically identical speech sounds, in any sense. On the same purest phonetic plane, a given speaker never reproduces any utterance identically, an unassailable phonetic axiom. The fact that one is able to identify a given utterance and to agree that two utterances have pronunciation attributes in common is due to a human tolerance which linguists of this century have come to treat as *the phoneme concept*. It is on the basis of this concept that one somehow manages to communicate on the oral-aural plane. One manages, for a given language, by generalizing an essentially infinite number of sound manifestations into a relatively small number of significant speech-sound concepts or classes. These classes—or classifica-

tions—are what the linguist intends with the term *phonemes*. He does *not* intend *sounds*, since phonemes are not sounds but *concepts* of sounds. If they were sounds, there would be no need for the term phoneme, since "phone" or "speech-sound" could then be specific and would suffice. Phonemes *are*—as stated—concepts or criterional sets on the basis of which particular phoneme classes are established. The referral of a so-called "speech-sound" to one of these classes is, in other terms, its identification with the relevant phoneme. A given utterance is no more a "string of phonemes" than a given sequence of letters is a "string of sounds." Letters are one order of symbols; sounds are another order of symbols, and phonemes are still *another* order of symbols. Letters are *written* symbols; sounds are oral-aural symbols; and phonemes are conceptual or classificational symbols. For a case in point, suppose one decides to "listen for" what one may loosely term "all the instances of [o]-sound" in speech. Limiting the focus of attention, first of all, to the speech of a single speaker, one finds that one actually *hears* a great number of *physically* different . . . and thus *phonetically* different . . . sound constructs, every instance of which one identifies as "an [o]-sound," since one refers each of these instances to one particular *sound concept*, in this case, the /o/-phoneme. To demonstrate, each member of the string of utterances [o], [o], [o], [o], [o], [o], [o] is physically and thus phonetically different, yet each is referred by both speaker and listener alike to a specific reference image or concept. If speaker and listener agree, they share that particular phoneme concept, and it is convenient to say all the utterances were 'the same.' Such relationship is as valid for the speech of a linguistically homogeneous community as for the speech of a single

speaker, since such a conceptual framework is the result of extensive oral-aural experience on the part of each speaker—or listener—involved. It is in this manner that a particular inventory of concepts or phonemes is specified for a given group or community or even individual, and when a group of individuals can agree on a body of concepts or classes, they share a particular phoneme inventory. Clearly, such inventories will vary—often considerably—from language to language. In fact, it is futile to attempt to relate the phoneme inventory of one language to that of another. However, when language transfer becomes operational for an individual,—that is, when he is faced with expressing himself verbally in a second language—the most normal phonological procedure for him is to identify the external language in terms of the central or first language. For instance, Spanish and other Romance speakers have no concept which corresponds with that phoneme to which English speakers refer the phonetically differing vowel sounds of *it*, *hit*, *sit*, *bid*, *did*, *rid*, *in*, *fin*, and *thin*. Consequently, the Spanish speaker identifies such vowel sounds with his nearest vowel phoneme concept, and his manifestations of that phoneme appear to be the vowel sounds, or the English speaker, of *he*, *be*, *we*, and *me*. In fact, the Spanish speaker can do nothing else, without a certain level of sophistication in English, since he *hears* [i]-sounds and [e]-sounds indiscriminately, a factor the nonlinguist finds difficult to comprehend. Thus, the speaker of Spanish seems to be making these two English categories of sound the same, and the result is the phenomenon of “thees ees eet” instead of “this is it,” and so forth. The area of generalization seems—to the English ear—to include *two* reference points, while for the Spanish ear there is but a *single* one. Such a phenomenon relates in a

very complex way to such a question as “one phoneme or two?,” and must be treated very delicately. For the teacher at first hand, however, the significance lies with the fact that there is resultant confusion for the Spanish speaker attempting English, in such pairs as *seat/sit*, *feel/fill*, and *team/Tim*.

When the confusion situation is not so clearly defined as between traditionally distinct languages, however, the very real differences are subtle and even surreptitious, but nonetheless valid. Such a situation, of course, is the primary focus of this discussion. And it is readily apparent, upon inspection, that here is more of this sort of mismatching than has met the eye—or ear—in considerations of the so-called underprivileged.

Fortunately, regional differences in the United States cause little difficulty. The New Yorker usually can understand the Californian who in turn can understand the Texan, and there is certainly no basis for considering one regional accent more “correct” or more prestigious than another. However, this general regionalism breaks down under direct examination. For example, in dozens of large cities, oral communication among geographical neighbors in the community may be virtually impossible; and where it exists, it is often inefficient and confusing. The cause is environmental and, in that sense, inherited; and differences result largely from social isolation, not geographical distance. Many teachers simply do not understand a word the children say, and essentially vice versa.

No simplistic solutions will overcome this kind of problem. Of the 27 USOE-sponsored first-grade studies in reading, those which dealt with the problem at all concluded generally that the mechanical, phonics-centered programs were superior. This finding certainly would be consistent with

Chall's findings. One ventures to suggest, however, that comparison of one program, based on an inadequate knowledge of the language, with another (albeit possibly worse) program is not getting at the source of the problem. Providing "lots of phonics" is not the whole answer, in view of the fact that the phoneme-grapheme correspondences presumably being taught do not necessarily exist for the speaker of a nonstandard dialect. English spelling may appear to be highly inconsistent and ambiguous, but graphemic representations are a marvel of consistency when compared with the gaggle of speech sounds that they reputedly represent. There is little profit in drilling a child on the correspondence between the letter *r* and the vocalic [r]-sound if no form of vocalic /r/-phoneme exists for him or if it appears to exist only in phonological contexts radically different from those being presented.

It should be noted that 1) the usual tests used to determine so-called "auditory discrimination" ("speech-sound discrimination" would be more to the point) are based on inadequate knowledge of phonetics and of test-construction involving phonetic principles and 2) speakers of one dialect can hardly be expected to discriminate consistently among the phones of another dialect, of which there are many more than is generally appreciated. In fact, the teacher in the mobile American society may find a variety of dialectal manifestations even in a single classroom. At Miami Jackson High School, located in a typically critical sector, certain teachers whose speech was not typical of this sector were asked to administer the Weiman Auditory Discrimination Test to students with "nonstandard" speech, relevantly typical for the sector. The average of correct responses was about 66 percent—particularly remarkable when it is considered that the administrative pro-

cedures on this test would yield a chance score of 50 percent. And this at the high school level! Certain suggestions do seem warranted: 1) There is no feasible, valid, reliable test of speech-sound discrimination presently available, 2) until there is a scientifically defensible test, there is no precise way of determining the adequacy of speech-sound discrimination among the "disadvantaged," or, for that matter, anyone else, 3) it is likely that speakers of nonstandard dialects discriminate quite well within their own dialects. It is no more surprising that they have difficulty discriminating among the phones of another dialect than it is that Americans speak French with an American accent!

On a related tack, it should be noted that a nonstandard dialect cannot justifiably be called "substandard," and its status as nonstandard in *no way* implies that it is linguistically inferior. The teacher, then, is not "correcting" the child's language, for in a sense his language is as efficient and effective as the teacher's. *It is just different.* The teacher will find the child far more amenable to learning a *different* way of saying something than to learning the "right" way, always pedagogically contrasted with his supposedly "wrong" way.

To the problem of remedying an admittedly bad communication dilemma, two possible general solutions present themselves. First, the teacher may learn the particular child's idiom and teach him to read on the basis of that idiom. Or, second, the teacher may help the child to learn a more standard English dialect as a second language and then teach him to read in that language. Using the child's own idiom is feasible but may not help to solve the sociological problems which obtain for the situation. Teaching a more standard English as a second language is currently in favor but is perhaps even more difficult. In order to accomplish

either or some combination of these, the teacher must be oriented in the direction of language analysis and language evaluation; for a strange situation presently exists in most teacher-training programs in that teachers are presumably prepared in the methodology of teaching the reading of the English language, but they are provided little or no understanding of the language itself or how it operates. How one could expect to deal with a problem as complex as the one just presented without a basic knowledge of the phonological functioning of his own language is clearly a mystery. How can dialectal differences be dealt with, or even perceived with, any effectiveness by the teacher unacquainted with the technical aspects and details: either his own or the child's dialect and who has no real notion of what specifics to look for or how to proceed to look? A seemingly obvious course of conduct is to provide a program of intensive training in phonetics, particularly acoustic phonetics, for teachers of reading. These needs will *not* be fulfilled by the gross generalizations (and specific misinterpretations) to be derived from books on "phonics" nor from books focused exclusively on traditional articulatory or physiological phonetics. A thorough knowledge of speech-sound analysis and of concept phonemics is expressly to the point. The professional educator is invariably impressed at the body of knowledge defining the phonetic sciences, at the list of exponents of that knowledge, and of the need for training in that area. In fact, any educator once disposed to examine the phonetic details of his language is irretractably converted from *prescriptivist* to *descriptivist*, and many leading universities have long since essentially guaranteed the effectiveness of their language-teacher products by providing extensive orientation in phonetic principles. need for such training has long

been recognized in England, for example, as in a dozen other European countries where teachers qualifying as instructors of any aspect of language, such as, reading, spelling, composition, or pronunciation, are required for their certification to be prepared in the basic phonetic sciences, a requirement involving the equivalent in this country of no less than three semesters of study. Specific departments of phonetics have been a part of leading European university faculties for at least a century.

This paper is a plea for an awakening in the field of language study. And the primary language target is our *own* language. Reputable educators of differing cultural background do not pronounce alike; they do not fashion their phrasing the same; they do not harbor the same notions about specific word definitions; and they do not attach the same importance to words, expressions, or pronunciation details. The dozen or more leading dictionaries do not evaluate the details of the English language the same. A form such as r-u'n appears in a leading dictionary as 172 entries, 97 of which have no auxiliary; does this fact mean it represents "97 different words," or does one take the attitude that "it is the same word with 97 different meanings"? When a native of Boston looks at a dictionary pronunciation key for words in -o-r, is he expected to have the same pronunciation for that key word as would his contemporary from Dallas, Salt Lake City, or New Orleans? More than half the teachers of reading in the Miami area are representative of Metropolitan New York City, New Jersey, or Pennsylvania dialect; can anyone imagine that *their* evaluations of native Floridian corresponds with *local* attributes? Is the reader aware that "short vowels" are acoustically longer before voiced consonants than "long vowels" are before voiceless conso-

nants? Or that all vowels are nasalized before nasal consonants? That such so-called "training alphabets" as the much-touted i.t.a. are literally fraught with basic phonetic errors? That there have been over 500 such training alphabets proposed for the education system in the past 25 years alone? That the i.t.a., itself, is as guilty of misconception, misapplication, and misdesign as are many of its competitors for the school market? Has the reader thought that contrary to journalistic and other pedestrian opinion, radio, movies, and television have *not* essentially eliminated dialectalism in the United States? Actually, something of the reverse is true. More people are now being heard *from* than ever before in history. Consequently, the countrywide population has been exposed through the media of radio, movies, and television to a wider variety of cultural and linguistic variance than was ever before possible. As a result, they have unwittingly broadened their tolerance or toleration *for* this variance! The implications of such an observation are immediately apparent to the experienced teacher.

There is a wealth of knowledge about language that the student is quite capable of assimilating; are you prepared to make that knowledge available? Join in promoting the availability of that knowledge. Do not wait for something to happen . . . *make* it happen!

Helping the Disabled Reader at the Elementary Level

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IN ITS LARGEST SENSE, reading should be considered as a way of life as well as a matrix of skills and abilities to be used as tools for constructing a fuller

and more complete life for the individual. Furthermore, present-day schools and education in general tend to be so textbook oriented that the less-than-proficient reader finds himself handicapped in his efforts to learn. Therefore, increased reading achievement and more effective teaching of reading skills should remain the focal point of present educational efforts in classrooms at all levels.

If pupils were all the same, the problem of providing reading instruction would probably be uncomplicated. If all pupils could merely put forth the proper amount of effort and, as a result, learn to read better, then the task of teaching would be relatively simple. Unfortunately, however, the realities of classroom instruction do not lend themselves to such simple behaviors or actions, and educators find that there are disabled readers for whom appropriate teaching must be provided.

In coming to grips with the problem of providing individualized instruction for disabled readers, teachers need to ask themselves questions, such as "who are the disabled readers?" and "how does one provide them with individualized instruction?"

The disabled reader

The problem is concerned with discovering the disabled reader or the pupil who is reading below his level of capabilities. In the less-sophisticated past, the average teacher usually thought grade-level expectation was the cut-off point. If a pupil read at a level below his actual grade placement, then he was a disabled reader even if the differential was only one month. Now, however, in the more enlightened era of modern education one has come to realize that the reader who is truly disabled is the one who is not reading at a level generally commensurate with his ability or capacity to read. And this concept holds regard-

less of a pupil's actual grade placement.

Basic considerations. The so-called average pupil, the one who seems to have average capabilities, is usually expected to read at a difficulty level that meets the average requirements for his particular grade. However, as one is well aware, not all pupils in the modern heterogeneous elementary classroom are average but range in capacity from two-to-six years or more. Moreover, the higher the grade level, the greater the achievement range differential.

Look at the lower end of the achievement continuum and think in terms of the pupil whose IQ is 70 or 75. Because of his apparent intellectual limitations, he cannot hope to compete with the average pupil. Generally speaking, no amount of drill, threats, or punishment will cause this child to perform at a level equalling that of the average child. Therefore, expectations of this pupil's performance should realistically include only that of which he is capable. With such limited-achievement potential this student will probably be reading a year and a half or more below average grade level expectations. Nevertheless, as long as he is reading as well as he can, he is not really a disabled reader, and his teacher should be content with his performance.

At the upper end of the achievement continuum one finds a different situation although the same basic understanding holds here as well. Suppose the pupil had an IQ of 150. If he is not reading at a level of two or more years above his actual grade placement, then he is actually a disabled reader. If he were reading at or slightly above the average expectations, then he would need help in reading; and appropriate instruction should be provided.

The modern teacher, then, looks to actual capabilities or capacities of

pupils in the classroom in order to determine their reading needs. Only those who are achieving at a level of difficulty somewhat below their actual potential for achievement should be classified as disabled. All others, as long as they are reading as well as they can, should not be so classified.

A general rule to follow in locating disabled readers may be stated as follows. In the lower elementary grades, if a pupil is reading six-to-nine months or more below his achievement potential as indicated by valid, reliable, and recent tests of reading and mental maturity, then he is probably a disabled reader. In the middle and upper elementary grades this discrepancy can be increased to a year or more.

Causes of reading disability. Discovering or identifying the disabled reader is one problem, but uncovering the reasons for the disability is another and much more complex situation. There are many factors affecting pupil reading proficiency, and these include all of the skills in the reading matrix as well as social, emotional, physiological, and perceptual immaturity or disability. Moreover, none of these is found operating in isolation, yet all of them have some effect on pupils' reading achievement.

Poor readers may have specific and overlapping deficiencies or impairments that contribute directly as well as indirectly to their performance. A pupil's hearing or vision may be so poor that he cannot profit from regular reading instruction and, as a result, he becomes frustrated because he lacks successful experiences in the classroom. His self-image begins to deteriorate and this affects his emotional adjustment as well as his social adjustment. He starts to dislike reading and all related activities and finds that he is less interested and less motivated to read. Therefore, he does not try as hard as he could. This decline leads to further skill deterioration, which

leads to greater frustration and a continuing downward spiral into an iniquitous situation.

Another fundamental consideration involved in determining partial causes of reading disability is that of pupil background and experience. In this instance one needs to look to the quality-quantity continuum. The quality factor is based on the size and sensitivity of the pupil's perceptual gestalt. The quantity factor is concerned with the total environment in which the pupil finds himself. He may be poorly attuned to the world in which he lives, and he may shut out many of the forces impinging upon him at a given moment. The result is that the quality of the environment is low. If he comes from a meager language-oriented environment, then the quantity is also low. Here one has a small quality-quantity continuum, and the result is reading disability. On the other hand, a pupil may be highly sensitive to his environment and well attuned to all the forces operating in it—a high-quality factor. If he comes from a highly motivating, rewarding, and richly endowed language environment, one gets a high-quantity factor. If the pupil is in harmony with and accepts all that is available to him, the quality-quantity factors are large indeed.

Yet most pupils find themselves in various positions along this quality-quantity continuum. Some may be in a rich language environment (high quantity) but, for one reason or another, fail to absorb or make good use of or accept what is available (low quality) and as a result are handicapped. Moreover, if a child is willing to learn all that is about him, but finds the environment meager, he is also handicapped unless he can leave his environment for one that is more rewarding.

Children who are perceptually attuned to the world in which they live tend to be the better readers be-

cause reading is a perceptual process. Those not so attuned are handicapped and may become the disabled readers.

Diagnosis before instruction

The second problem vital to individualizing reading instruction for the disabled reader is that of diagnosis. Teachers need to uncover the specific skill-cluster deficiencies that hamper the pupil in his efforts to read. There is a host of separate reading skills in the total reading matrix, yet they seldom operate in isolation either. Nevertheless, they need to be noted because any one or group may contribute to individual reading disability.

Standardized tests and formal diagnosis. There are numerous excellent, modern, standardized reading tests available to teachers. Many tests can serve well the purpose of diagnosing pupil reading deficiency. This vast abundance of tests includes both the individual type and group type either of which can give valid and reliable information if properly administered, scored, and interpreted. A perusal of the latest *Mental Measurement Yearbook* by Buros will enable teachers to find the specific tests they need.

Non-standardized tests and informal diagnosis. Another way of testing for pupil reading deficiency is to construct an informal reading inventory. Assemble selections of reading material graded as to readability difficulty level. Have the pupil read the easiest selection first; and if he performs satisfactorily, go on to the next higher level. Continue this process until the pupil can no longer read with ease and comprehension—his frustration level. Back down one grade level to reach his instructional level. Back down two grade levels to reach his independent reading level.

Once the tests have been administered and scored, it remains for the teacher to evaluate them in terms of

what they tell about pupil's reading deficiencies. Merely scoring tests is not enough. The teacher must look to what the scores tell about pupil's reading problems. This procedure is vital to planning an instructional program that will fit the needs of the pupils.

The instructional program

Once diagnosis is complete and the teacher is aware of the apparent reading deficiencies causing reading disability, it remains for him to plan and carry out an individualized program for the disabled reader. It is mandatory that the teacher adjust reading instruction to fit the pupil and to know where the pupils are on the readability continuum. The fundamental question to be asked at this juncture is, "What reading skills does this pupil need to know in order to become a better reader?" An examination of the reading matrix will serve as a guide here.

Planning the program. In order to really individualize instruction for the disabled reader, the teacher should confer with the pupil and note for him the reading skill deficiencies that appear to be hindering his reading. Together they should examine the reading matrix so that the pupil can be aware of the skills he needs. He can be acquainted with his personal, individual areas of deficiency and can begin to work toward overcoming them. To this end, teacher and pupil establish realistic goals in a step-by-step fashion so that they can be attained by the pupil.

Planning an adequate instructional program entails discussion of all facets of the reading matrix. Pupils must be aware of the effect of their general environment on their reading achievement. They must also be aware of their own capabilities and status of physical, mental, emotional, social, and perceptual capacities as they relate to increased reading achievement. And must know the effect of their own

motivation or inner drive, their thrust for increased reading achievement.

Pupils should be told of the three main avenues of learning: through auditory methods involving listening and writing, and through kinesthetic methods or physical sensing when learnings are especially difficult. Therefore, both the teacher and the pupil have to plan work that will insure successful reading experiences as well as experiences that will be meaningful and skill strengthening.

Using the reading matrix as a guide, the teacher can plan with the pupil so that he will work on the specific skills needing attention. If he is weak in sight vocabulary or use of context clues, these need to be noted and plans made for reading activities that will overcome the problems. In this way the pupil becomes a part of the instructional program. It is his, and he can comprehend it. It suits him, and it makes sense as compared with something from without that is imposed upon him.

Teaching the disabled reader. Once the plans have been made and the goals noted, the teacher needs to provide for specific instruction in the area of pupil skill deficiency. In some ways this is no easy task because the teacher is responsible for instruction. Yet, it is a fact of classroom life that the teacher is not the only source of learning. Pupils can learn from other pupils if the environment in the classroom is structured to this end.

The knowledgeable teacher knows that instructional time is always in short supply and there may not be enough time to always work as closely as necessary with disabled readers on an individual basis. To achieve this desired end, the teacher should consider using the classroom total team approach whereby informed pupils assist their less-fortunate peers. In this procedure the teacher initiates the instruction, and another pupil carries on with

The Reading MATRIX

BECOMING

Appreciation

Interpretation

Comprehension

judgment of propoganda
 making conclusions
 drawing inferences
 opinion vs. facts
 discovering author's purpose
 noting sources
 Critical reading skills

span of recognition
 speed of recognition
 Perceptual skills

study-type reading
 rapid reading
 skimming
 Reading versatility

Library skills & usage

Dictionary skills & usage

Syllabication skills
 Prefixes - roots - suffixes
 Inflected endings

Structural analysis skills
 final elements
 phonograms
 initial consonant blends
 initial consonants

Phonetic substitution
 vowel sounds
 consonant sounds

Letters of the alphabet
 Phonetic analysis skills

Context clues to word attack
 Configuration clues to word attack
 Sight vocabulary

Learning to use picture clues

Successful experiences
 in
 reading



Auditory Methods
 listening
 speaking



Visual Methods
 reading
 writing



Meaningful experiences
 in
 reading

Kinesthetic
 Methods
 physical
 sensing



Motivation: inner drive -- thrust for knowledge

Capabilities: mental, social, physiological, emotional, & perceptual capacities

General environment and background of experiences (quality — quantity)

it. Children in the same classroom can work together, one helping the other, so that the disabled reader is taught the skills he needs. Another way would be for older pupils from the upper grades to come into the lower grade classrooms on occasion and assist those needing instruction.

In teaching the disabled reader it is suggested that the Individualized Reading Progress Chart be used, following the instructional plan already noted by the teacher and pupil needing

help. The pupil and his helper working together could note where he is on the chart and what he must work on in order to increase his reading achievement. This plan could work somewhat as follows: assuming that the disabled reader needs to increase his sight vocabulary, read for greater comprehension, and learn the word attack skill of phonogram substitution, the teacher will plan proper reading activities and exercises with the pupil.

The teacher, disabled reader, or

helper would then construct flash cards of the needed words, and the helper could give needed drill. This part would be for a prescribed period of time, and the helper would assist the disabled reader either until the words were learned or the time elapsed.

Then the disabled reader could read a selection and answer questions about it. Or he could peruse the questions first, then read the selection, and answer the questions. Immediately thereafter the pupil could check his responses and see how accurate he was. Then, if necessary he could go over the mistakes with his helper and learn why he made errors.

When that part is properly completed, the disabled reader could take up exercises in phonogram substitution. Keeping the initial consonant in *bat* he could go on to make words such as *bake*, *bite*, *book*, and *bought* merely by making the proper phonogram changes. He could write these words on a sheet of paper and check with his dictionary when in doubt. Scoring of responses would be the task of the helper. Although this is only one instance of phonetic analysis, it serves to illustrate how the suggested procedure might be used.

Each disabled reader should keep his own records in a folder and should check his learning in the Individualized Reading Progress Chart. He should have a special folder of his own in which he keeps all of his work. This file will enable him to be aware of how well he is progressing toward his goal of becoming a better reader. Also, he will be better able to know when he no longer needs drill in a particular skill, so he and the teacher can together plan other more difficult activities.

In this way both can see the progress being made. Thus the disabled reader gains skills and confidence in himself. His ego begins functioning in a more positive manner. He is learn-

ing to be successful at a difficult task and ultimately can be led to become a better adjusted individual who is learning to really enjoy his school experiences.

Conclusion

Reading should be a process of becoming better informed, more interested in the world community, and a better person. Most important of all, one should become a better reader and no one really finishes this process because there is always room for improvement.

The purpose here has been to explain some ground rules for providing individualized reading for disabled readers. First of all, one must identify the pupil who is truly disabled and then diagnose the difficulties and plan an instructional program that fits the pupil. It was suggested that one of the best procedures to use is that of the total team approach whereby pupils help each other. A typical lesson could include 1) flash card drill to increase the pupil's sight vocabulary, 2) reading for comprehension activities to increase the pupil's awareness of reading for meaning, and 3) specific skill practice such as phonogram substitution for better word attack and subsequent success in the reading act.

This, then, is a suggested program in which the teacher can individualize reading for the disabled reader. When properly planned and carried out, these procedures will go far in helping the disabled reader at the elementary school level.

Planning Remedial Reading Services in a Secondary School

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THERE IS NO MORE discouraging experience than that first look at the fifteen

of twenty faces in the remedial reading class of the senior high school. The range of expression that answers the teacher's self-confident and composed smile travels from sullen resentment to the cooperative hopefulness that asks pathetically, "Perhaps now?"

Educators who have lived through this moment more than once will know the truth of it and, therefore, will know the equal-truth of the next statement: There is also no moment in any teaching career more wonderful than that time (which *does* occur) when the teacher can beam at the little group and say with sincere enthusiasm, "I am so proud of you! *Everyone* made a gain in reading this term . . . every single one!"

The teacher tries to gather those who gained only two months into the happiness of the two or three who gained thirty or even forty months. (No need to belabor the point by discussing methods of relieving the despair of those who, on occasion, may lose ground.)

The big question now is what can the secondary school *do* for the seriously retarded and the nonreader? In attempting to answer this double-barreled question the writer offers years of classroom and supervisory practice, years of trial and error, years of discouragement, but also years of growing success and confidence. From this experience a teacher will attempt to offer some suggestions, hopefully some reassurances, and perhaps even challenges for thought through the statements with which the reader may disagree.

Analyze the problem

At professional conferences a teacher has admitted that there *is* a problem. He has discussed the reasons why the problem exists and the ways it might have been prevented. He then asks, "What can be done about it?" Most important of all, he

asks the big question "What can be done to help these students after all their years of failure?"

To help the dozens of individuals in a school who have reading difficulties, perhaps one should consider the situation as a single problem. How serious is it?

When one has found what percent of his high school pupils is seriously retarded in reading and what the number is at each level of retardation, he will begin to know the scope of the program he must be prepared to establish. Now is the time to work rapidly. Further analysis and more effective diagnosis can be made as one goes along. The program should continue while it is being analyzed from all points of view.

Determine philosophy

Perhaps this task is a polite way of saying, "Decide what one can afford to do!" The problem may be divided into three pupil categories, the slightly retarded, the seriously retarded, and the nonreader. Then one must decide how much concentrated effort to put into helping each group and how many extra classes one can afford to establish, considering, of course, limited funds. Where should the most emphasis be put?

Slightly retarded readers *can* be handled in regular English classes doing work specially planned by reasonably skillful teachers. Seriously retarded readers need special reduced-sized classes in English or, better still, additional classes for reading instruction. Nonreaders must, if there is any hope of helping them, be placed in clinics of only four or five pupils. The clinics will be programed in addition to, or instead of, regular English classes. There will be *no* hope for the severely retarded if they can have more than one clinic period each day.

However, members of this latter group may need special medical and

psychiatric help which is beyond the scope or the ability of the most skilled classroom teacher. Every school system should be able to provide these services, but few can. One must remember that these pupils cannot be abandoned. Even when failure seems certain for them, *the teacher* cannot fail them. He must keep trying, if not for total reading success, then for success in human communication to lead them to happy, successful lives. They need to *know* how much the school system wants to help them. This knowledge alone will start some of them on their way to success in reading—and in living.

Assess potential

First of all, an ability to deal effectively with the problem will depend upon having a reading "specialist." The IRA has set down reasonable standards for the qualifications expected of reading specialists at all levels. Most important, in addition to professional training in the teaching of reading, is that this teacher have had some experience in teaching reading in the lower and intermediate grades. If a school system does not have such a teacher, it must get one.

Next, consider those on the faculty who may be personally qualified to teach retarded readers. The key is the personality of the teacher. None can reach any ideal in all ways but must search for the ones who come close to it. The reading teacher must be one who is kind, sympathetic, calm, competent, and systematic. He or she must be able to gain the confidence of the pupils, to make them feel secure in the classroom, to inspire them to improve, and to make them feel certain that they *will!*

In a secondary school, if one cannot win the cooperation of the teachers of all subjects, the war is already lost. Some may now choke if they hear once again, "Every teacher is a teacher of

reading!" Put it this way, "If one does not teach reading skill in his subject he is not teaching his subject *welt!*" Somehow there are fewer choking sounds here! Why? The message is getting through. Teachers of content areas *can* be reached; and when they have been, they will do their share in the badly needed program of in-service training.

First organize their discontent. High school teachers often complain, "Joe can't even read the trade manual." or, "Joe can't read the simplest word in the textbook!" Elicit their help under the guidance of the reading consultant. Provide time for teachers to confer with the consultant informally--removing the "supervisor" from the picture. The reading consultant can then soothe them and perhaps convince them that teaching reading is *not* taking time away from the teaching of their subject but is contributing to the *better* teaching of it.

Subject teachers should be encouraged to invite the reading consultant to observe some of their lessons, or parts of lessons, in which reading instruction is required. Again, no critical report should be made after such an observation. A friendly conference with the reading consultant will result in improved teaching and in a greater willingness on the part of the subject teacher to be an active member of the reading staff.

The consultant should give demonstration lessons for teachers of content subjects. The best place to demonstrate is in the subject teacher's own classroom. One or two other teachers might, of course, be invited to attend. However, the pupils will feel much more at ease, much more secure, without an audience. Remember always that the pupils must be considered first. Those with whom this work is concerned are terribly sensitive.

Next, consider how much in-service training may be needed and how it can

be arranged. Who will give the training, at what hours, and for what period of time? Even a few hours of such training can lead teachers to the reading of professional books and to an interest in further research.

Plan in-service training

The reading consultant is naturally the one to head the in-service training. Courses given in one's own school building usually make participation in the program much more convenient for the teachers, even those in city areas. If a school system cannot afford a consultant of its own, then engage one from another system who will be able to give the course after school.

Should circumstances prevent hiring a trained consultant, even on a part-time basis, the next best resource must be a teacher, or teachers, in the school who will be willing to do the research and take the leadership in developing the remedial reading program. The teacher leaders can then encourage others to read, report on, and conduct discussions of the best books and articles on remedial reading. Reading must be complemented with visits to several schools where successful reading programs are going on. Do not forget to study the methods being used in the initial teaching of reading in the grades.

The IRA publication *Developing High School Reading Programs* is heartily recommended. Note particularly the article by Henry A. Bamman. This, as well as the many other excellent articles, will be helpful in the planning of the program. Other writings found to be especially good are *Improving Reading in Secondary Schools*, compiled by Lawrence E. Hafner; *Toward Better Reading* by George D. Spache, which presents the total picture of the problems involved in the teaching of reading, with extensive bibliographies to guide further research; and *Teaching Reading in High*

Schools by Robert Karlin. The latter book offers very practical suggestions for materials and methods suitable for use in the senior high school.

There are so many commendable materials now available on the subject of high school reading that one can neither name them all nor name any one as the very best. Be guided by IRA listings.

Having outlined the in-service course, look to the practical considerations. Is the course to be conducted during school hours or after school? If the latter seems the best time, decide the credit teachers will be allowed. Surely, teachers should receive the same "credit" given college courses for professional preparation. Consider, also, the possibility of having the course sponsored by a local college.

Most important of all, draw on every resource to make both the research and the practice rewarding to both teachers and students.

Agree on the methodology

The reading specialist must, of course, lead the other teachers to agree to use those methods the specialist knows to be best. All will grant that the situation to be faced is different from the one met by the teacher of remedial reading in the lower grades. One cannot wait in senior high. There one is not launched on a developmental reading program in the ordinary sense. In fact, the goal is to *prepare* pupils to take part in the usual high school reading program.

May this writer describe the method that has worked best among many tried over the years?

Motivation and inspiration are always necessary, absolutely necessary. In dealing with these rather mature people who know their own failures, give it to them—head on! Give each pupil that little paper on which appears his reading grade from the recent test. (He may show it to his friends or de-

stroy it.) Discuss frankly, as with adults, what the problem is, how to solve it, and what the prospects of success are (excellent). This attack is the basic part of the motivation, to be repeated as needed.

When introducing the materials to be used, tell the pupils exactly what each one of them should do to start toward success. Frequent reminders may be needed, applied obviously or subtly. Have the pupils keep records or graphs of their scores on the tests supplied for each of the books or other materials used.

Reassure the nonsucceeders constantly. Get to know that group first. They have a greater need than do the others. Try to find the secret motivation that may work. Try, try, and try again.

Hopefully the school board has allowed at least two periods for helping retarded readers. Two will be needed. Reading cannot be taught in a language-arts vacuum. Practice in basic reading skills (recognition of main ideas and details, forming conclusions) must be accompanied by lessons on the construction of written paragraphs, based upon the same organization of thought. This pattern may be turned toward the preparation of oral or written reports on movies or TV programs, current events, or pupils' own experiences.

Far from being last on the list is the practice in word recognition, word usage, and correct spelling. This practice leads to the use of phonics. The high school teacher must find his own way. Some of his pupils will have had such training. Some will appear to have had none. But reading is, after all, a matter of word recognition. Have frequent (but brief) drills on words included in each lesson. Never miss a chance to review words as they reappear in other readings. Arrange opportunities for slower pupils to help one another. There is no

better way to learn than to have the obligation to teach others.

Teachers of math, science, social studies, and English should plan their courses of study with the aim of teaching the reading skills needed for the better learning of the subjects. These teachers should be given every possible assistance by school administration, subject supervisors, and the reading counselor.

Experience indicates that homogeneous grouping of retarded pupils works best for both pupils and teachers. The problems of teenage readers who are three years retarded may be quite different from those who are five or more years retarded. All know the impossible problems of the teacher who must plan all her work on the basis of group activity.

To counter the obvious disadvantages of homogeneous grouping, one can rely upon the heterogeneous classes in noncontent areas to lessen the "isolation" of the retarded readers. Many may perform amazingly well in art, music, shop, athletics, and, in fact, in one or more of the content areas.

Select materials

Do not over-order that first time! Get sufficient books to fill the need for the first year. No matter how attractive a book is, only the use of it can prove its value. Experience will tell one which to reorder and to store up for future use.

Those the writer would recommend for starting a high school remedial program are the following:

New Practice Readers, McGraw-Hill, Inc.; *The Turner-Livingston Reading Series*, Follett Publishing Company; *Reading for Meaning*, J. B.ippincott Company; *Reading for Understanding* (junior ed.), Science Research Associates; and *Reading Laboratory*, IIIa Science Research Associates.

Audiovisual aids are wonderful, but

concentrate on the word AIDS. Never forget that these are *aids* to good teaching, not substitutes for it! Read Robert Karlin's indictment of "the shotgun or incidental approach" to teaching reading skills as being actually harmful (1). The slow and the confused pupil who is simply exposed to reading situations is made more aware of his handicap, but he finds no help.

Wise use of visual aids should have a dual aim: first, to make reading more desirable, more attractive, more necessary; and second, to enrich the reading experience by requiring reference to what one has read. Both have the effect of making reading a more profitable experience.

The ultimate goal in any reading program is a gradually increased use of the school library. A good one will be well stocked with books that will appeal to the slower readers. Displays of these books will be an important feature of the carefully planned and truly individualized lessons. As the teachers learn more about their pupils, they will be better able to suggest new titles to make the library widen its appeal.

Plan the records to be kept

The first rule here is "Keep it simple!" Many teachers and reading consultants are overwhelmed by the highly detailed and complicated records sometimes presented when a reading program is started. Reading tests are not the whole answer in measuring, but surely they are the best measurement one has. Oral reading by pupils can assist a teacher in analyzing the true nature of a pupil's retardation. A simple card that provides for the recording of reading grades, a coded notation on symptoms revealed by oral reading, and a place for a brief comment by the teacher is sufficient.

Evaluate the program annually

the cold fact of reading progress,

based on the "before and after" reading tests may be the only report a budget director will want to read. Well and good. One can hardly defend a reading program in which no significant gain is achieved by telling in glowing terms how much the pupils have gained in social graces, feelings of security, and so forth. Here was a program designed to improve the ability of these pupils to read. Good teaching always provides for all the concomitants to learning. Poor teaching may destroy them, along with the learning. Therefore, can one imagine a program that shows success in improving reading but fails to show exceptional achievement in dealing with these same pupils as human beings?

Some critics not only *may* but *will* say that one is merely teaching these pupils to do better on a reading test. Certainly, the pupil who improves so that he can earn a score within a year of his normal grade is now ready for the developmental reading program in his regular English classes. He is also ready for voyaging into fields of creative writing and thinking. Many of the experiences of normal learning, closed to him in the past, are now possible. Many of the reasons this same pupil may have had for embarrassment and discouragement no longer exist.

Does such a program add up to rigidity? Of course it does! At the high school level this is a crash program, truly. Meaningful results must be obtained within ten months. Truly also, this time element is the very best motivation for a program. Give it to the pupils, eye-to-eye. Tell them what the problem is. Together work toward the remedy. Pupils *will* improve in reading. All will not achieve their normal grade level, but very nearly all will improve—and improve a great deal.

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Psychological Principles in Materials Selection

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IF ONE BELIEVES that human development is linked to learning, one chooses teaching materials that can be justified from a psychological base. Much is known about the behaviors children show as they learn to read. Less is known about the appropriate means and materials for facilitating such learning. It is the purpose of this paper to explore principles derived from psychology which might be used by teachers in materials selection.

Language continuity

The child develops language in a generally continuous pattern. Before he comes to school, he has mastered the spoken language of his environment. His first teacher, his mother, is a model for imitation as well as a source of affection and recognition. His language growth continues without interruption after he comes to school if the school program builds upon his first mode of communication, his oral vocabulary. He comes to understand that the printed word and the spoken word are representations of each other.

Because learning is a sequential process, materials for beginning reading should include familiar words that have some personal significance for individual children. Meaningful material is learned more easily and quickly than nonsense syllables; materials which are based on the natural vocabulary or sentence patterns of children and are related to the life experiences of children are more easily compre-

hended. Moreover, they help the child appreciate that written symbols represent the sounds of language and hasten the discovery of sound-symbol relationships.

Interests and attitudes

Commonly used reading tests fail to measure important types of learning other than skills and abilities. The development of attitudes and appreciations, insights, and interests contribute as much or more to long-term growth in reading. The kinds of materials used to introduce children to the reading process influence the way they perceive reading, learning, and school. Many children fail to see reading as useful, pleasant, or relevant to their life styles.

Blom, Waite, and Zirret (2) analyzed the content and style of first grade readers. Stories which are described as "Pollyanna" in nature ranked first in eight reading series. A content analysis showed no differences among preprimers, primers, and first grade readers. The stories were categorized as neutral and redundant without much content significance and variation. Happy and family centered, the children play in comfortable suburban settings with their younger siblings and their animals. The authors point out that the gestalt of basic readers represents a striking divergence from the realities of community, family, and child life, and from what is known about child development. The child of six or seven shows many in-

dependent behaviors. The boy in particular avoids girls and is less family centered. He is curious and interested in the world around him. But his reading tends to exert a regressive influence by its stress on family attachment, younger siblings, and ambiguity in sex roles.

According to Huck (4), reading interests and attitudes are more likely to receive attention in the basic readers developed in the sixties, rather than formerly. Much is being done to improve reading textbooks so that there is much variety of choice for the teachers in 95 percent of the primary grades who use such texts. There are books for children in urban schools and books for children who live in suburbia. New multi-ethnic editions of books tend to portray something of the diversity of the American culture, although it has been argued that these, too, give rise to stereotypes about people and their relationships to others. The one white child living in a Negro community has been criticized as appearing isolated and lonely.

Although the new multiracial editions will be used in heterogeneous communities, many children living in more homogeneous environments will encounter the same stereotyped portrayals of white, North European, blonde people, and others from the South European countries who are organ grinders, peddlers, or fruit and vegetable vendors. The pleasant middle-class comfortable homes, the clean attractive clothes, and the presence of numerous toys suggest that poverty exists only in fairytales. All the children continue to be exposed to and influenced by 1) anthropomorphic thinking which ascribes human qualities to animals and 2) animism which ascribes life and thought to inanimate objects, such as, the engines who try and the tugboats who cry. Social psychologists such as Klineberg (5) view anthropomorphism and animism as un-

necessary barriers to the intellectual development of children.

Sequential learning in language

Learning to read is believed to be a process which develops sequentially in certain fairly well-defined patterns. The usual types of material designed to teach beginning reading require few skills and little differentiation from the learner. Gradually, the materials appear more difficult; and the number of words, larger as the preprimers are replaced by the primers and first readers. One of the ways by which initial difficulty is minimized is through the use of vocabulary controls which sharply restrict the number of new words introduced in any one selection. Other ways of limiting difficulty include the use of short structural units of meaning or sentences and limiting the length of selections or stories.

When children are given free choice of reading materials, they prefer books that are less repetitious than the basic readers and perhaps more difficult to read. Or it may be that a larger vocabulary load which emphasizes the regularities of sound-symbol relationships, which comes close to the interests and experiences of children, may shorten the period of dependence upon the teacher.

One asks what makes a sentence easy or difficult for a child to read. Choppy, unnatural sentences are more difficult to read than natural sentences of normal length. The arrangement of words in groups within larger structural units often contributes to meaning and makes the reading of the unit easier.

It has been suggested that reading materials which break units of meaning into their smallest bits in order to minimize error and to make possible the reinforcement of correct responses may not represent the most efficient approach to learning. One can argue that the number of new words intro-

duced in a text or, for that matter, the application of a readability formula does not offer valid measures of reading difficulty. If the words used in the text are not part of the oral vocabulary of the child, they are not easy to learn; and the desirable relationship that should exist between a child's oral language and his reading no longer holds. The basic vocabulary of a child is what he understands and uses. For him the basic vocabulary of the reader may be unfamiliar and somewhat defeating.

Controlled vocabulary is not the best indication of the relative difficulties of the concepts or new ideas presented. The conceptual structure of the disadvantaged child, for example, may be such that the child is not ready to cope with a limited number of words that in reality require abstract thinking.

The stilted writing frequently found in preprimers and primers does not represent normal speech patterns. The child may find it difficult to discover meaning to words which are familiar but which are patterned in difficult and strange combinations. The imperative form of the sentence "See baby run" is complicated and sometimes hard to comprehend on the first or even second try. The short three-word phrase contains two separate and distinct thoughts.

Difficulty in reading appears to involve more than the presence of unfamiliar words to long sentences. The child's language is built up block by block of meaning units. Materials which employ familiar meaning units are easily read and understood. A teacher, skilled in listening to the patterns of children's speech, can identify the meaning units and match them to appropriate materials.

Differences in language between middle-class and disadvantaged children suggest that restricted patterns of language contribute to difficulty in reading. Bernstein (1) describes language of poor children as rigid, re-

stricted in meaning, reduced in elaboration, stressing the active rather than the passive voice, and relatively condensed. Children who use the restricted patterns of language are later limited by their language to relatively low levels of conceptualization.

It appears that teachers of children who use restricted patterns of language would search for materials which incorporate common structures; use simple sentences; emphasize the active rather than the passive forms of verbs; refer to the concrete rather than the abstract; emphasize gross aspects of environment rather than fine details; provide less exposition, more dialogue, and less subtle distinctions. Short selections which do not delay the gratifications of closure or satisfaction of curiosity also seem indicated. Because learning to read is harder for the inner-city child, it appears important not to use nonsense words. Materials which divorce words from meaning interfere with close relationship between language and thought and tear down already established associations.

If reading consists of decoding written or graphic material into already-learned sound patterns of spoken language, learning becomes more efficient if the words used in the early stages are limited to those which have regular or stable relationships with sound patterns. In examining materials, the teacher might ask if they actually simplify spelling-sound correspondence or if they burden the learner with the task of memorizing rules which later must be discarded. Do the materials attempt to teach many phonic items and conventions? Or do the materials develop more general techniques, understandings, and insights?

The construction of materials which are designed to permit the discovery of sound-spelling correspondence probably results in learning that is retained longer, increased motivation to continue learning efforts, and favorable at-

titudes and interests in reading. However, the task of discovery should not be so difficult that success is not achieved. Success is an important aspect of the discovery approach to learning, for it provides immediate reinforcement and involvement of self.

Individual differences

Although the authors of basal readers may develop an orderly sequence of practice, the teacher finds that it rarely fits any child precisely. To adjust to different levels of achievement and rates of progress in the various reading skills, the teacher supplements the text or at least modifies the way it is used by individual children. The best instructional materials must be used with judgment and planning.

Typical basic reading programs, according to Gates (3), are incomplete and rather poorly organized for the teacher who subscribes to the principle of wide individual differences. There is a need for new materials which make greater use of the child's natural approach to language. In the future, one will move toward the analysis of learning tasks and the sequencing of subtask learning for greater component task achievement. At present it seems wise to utilize a variety of approaches to learning, without focusing on any one method to the exclusion of others. There are strengths and weaknesses in all approaches presently used. No one set of instructional materials, no one prescribed method, no one new system is suitable for all children. What is required is highly differentiated instruction and more materials with greater variety of content.

Multiple materials

The Cooperative Research Branch of the U. S. Office of Education supported twenty-seven coordinated research projects on beginning reading instruction. One of the important observations to be drawn from

the studies is that teacher effect appears to be greater than the effect of method in teaching reading. Improving the effectiveness with which teachers utilize a variety of materials and adjust the materials to individual children may yield better results than devising a new method of teaching.

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Educational Principles for Evaluating New Instructional Materials

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My Weekly Reader

TODAY'S SCHOOLS are confronted with a vast array of proposed changes. All facets of the educational process are being challenged. As a consequence, attention is focused on three major areas: instructional materials for a changing curriculum, new patterns of school organization, and instructional techniques.

At no time has there been such widespread concern for instructional improvement in American schools. Numerous curriculum changes are

being made. New curriculum patterns are being developed both in terms of sequential content and teaching procedures. Traditional materials are being improved and numerous new educational media have appeared. Today, there is a wealth of materials—books, toys, games, films, recorders, projectors, teaching machines, transparencies, and other kinds of equipment—which teachers can use to enrich their teaching. However, the availability of numerous resources does not insure that children's learning will be effective.

The problem becomes one of selection for any given teaching-learning situation. Educators are faced with a challenge in selecting educational materials to meet the needs of their pupils. With the proliferation of educational innovations, one must be sure that the glare from this educational explosion does not obscure the ultimate goal—quality education and improved learning for all children. Unless there is some kind of systematic procedure for choosing these materials, a lot of money can be spent unwisely.

Criteria for judging instructional materials

In order to assess new instructional materials successfully, a framework of guidelines drawn from the results of recognized research and educational principles is needed. Such criteria should be stated in terms that have operational meaning. While the following criteria are general and some need to be thought of in terms of a particular subject area, this framework may be used for developing additional criteria pertinent to various subject fields.

Redefined goals. Americans have always put a high value on the cultivation of individual potential—on self-fulfillment of the learner. Although a good job has not been done in putting this value into practice, it still remains a special goal of education.

Society is saying to educators—redefine the goals of formal education less in terms of subject matter to be mastered and more in terms of developing abilities and techniques such as problem solving, analyzing, synthesizing. In short, learning how to learn will be the major goal of education. In examining new teaching-learning materials, certain questions need to be asked:

1. Are the goals definitely stated in behavioral terms?
2. Do the teaching-learning materials spell out the goals they hope to achieve?

Information. "To live effectively, all organisms must have adequate information which has significance for the learner. . . . Information is the vehicle by which meaning is acquired. . . . In order to be effective in today's world, a person must have information," (6).

1. Is the information up-to-date?
2. Is the information selected for pupil-interest appeal at any particular maturity level? Are the materials appropriate for the learner?
3. Is the information of personal-social value, worth the child's knowing?
4. Does the information achieve stated goals?

Sequence. There is some sequence in all learning. Sequence in learning appears to be useful as a broader forward movement along a continuous line of development. Sequence is concerned with the best order of educational materials and activities for achieving particular goals.

1. Is the program continuous and sequential K-6 or K-12?
2. Is the sequence appropriate to the various learning levels?

Concepts. Concepts give meaning to separate facts. Isolated facts without concepts and generalizations to unify them do not tell what to expect in new situations. Concepts provide a

structure to knowledge. It is only as facts are related to other ideas and to large generalizations that bits of information become meaningful (2).

1. Are key concepts stated and developed at each grade level with appropriate materials and activities?
2. Are there continuity and sequence in the development of strategic concepts K-6 or K-12?

Methods: teaching-learning procedures

In many cases teaching techniques go hand-in-hand with instructional materials. Both can give vitality and meaning to many learning situations. Tools of teaching (content and techniques) have a most important bearing on pupil learning.

Extensive research in quality of education and how children learn points the way to improving the teaching-learning process. Vincent's research (7) identifies five categories of educational procedures which exemplify school quality as follows:

- Individualizing the learning procedure
- Interpersonal regard among pupils and between pupils and teacher
- Creative expression
- Divergency of thinking
- Group activity

How children learn

Piaget, Bloom, Bruner, and others have spelled out five definite levels of how children learn. Piaget found that the sensory-motor level of learning should precede the language, conceptual, and thinking levels.

Sensory level. Sensory data is the first level of learning. Learning proceeds best under conditions which provide a wealth of diverse, sensory-manipulative experiences. A child learns best by proceeding from concrete things to the abstract, from simple complex things, from the im-

mediate to the remote. Learning has a better chance of succeeding in an environment which allows the child use of his five senses. But this takes time and some are in a hurry!

Perceptual level. There is need for more learning in both visual and auditory perception which builds a framework for concepts. Adequate visual-perceptual skills are of crucial importance in learning. A child cannot profit from phonics until he has had adequate training in visual-auditory perception and language.

Conceptual level. Concepts are built by data coming in through the sensory and perceptual levels.

Language level. Expression of ideas is an important part of learning. The relationship between reading, personality, and language development is well established.

Thinking level. Thought processes are concerned with manipulating concepts and relationships between concepts. Developing children's thinking requires direct teaching.

In evaluating teaching-learning procedures, numerous questions such as these need to be raised:

1. Do these newer devices and approaches accomplish clearly stated goals?
2. Are the five levels of learning provided for with appropriate teaching-learning activities?
3. Are individual rates of learning recognized?
4. What are the relative emphases given to individual, small-group, whole-class activities?
5. Is there a reasonable range of learning activities and adequate balance in kinds of experiences? Is there a breadth of dynamic teaching techniques to give variety and motivation to the school day?
6. Are pupils guided to express themselves creatively?
7. Is the innovation economical of

time, space, and human resources?

Skill development. Skills enable man to discover knowledge, to utilize it, and to continue learning outside the formal school situation. In short, skills aid man to *learn how to learn*, an important goal of education. Today, skill development is recognized as important and must be an integral part of any school curriculum K-12. Hunkins (3) identifies two distinct groups of skills:

- Intellectual skills such as inquiry-discovery and problem-solving, thinking skills.
- Process skills such as library skills and map, globe, graph, and table interpretation skills.

Certain questions concerning skills should be raised when examining new materials:

1. Are definite materials and experiences provided for developing skills pertinent to particular areas?
2. Are several levels of thinking skills provided for?
3. Are aids provided to help the teacher manipulate the complexity of thinking skills?

Diagnosis. "Diagnostic teaching is imperative if we wish to attain lasting improvement in instruction and learning. If any benefits are to accrue from new programs, then these innovations in teaching-learning must provide for and encourage diagnostic teaching" (5).

Again, educators need to ask these questions:

1. Are extensive diagnostic measures provided to determine each child's strengths and weaknesses?
2. Are follow-up materials provided and keyed to stated goals?
3. Are basic skills (in any area) diagnosed?
4. Is progress evaluated definitely, systematically, frequently?

5. Does the program provide training for the learner in skills of self-evaluation as part of the daily learning process?

Teacher's guide

Research indicates certain variables that tend to increase the rate and degree of pupil-learning effort. Many of these variables are subject to control and manipulation by the teacher (4). Factors in the teaching-learning act include the following:

- Adjustment of academic content to fit individual pupil needs
- Teacher expectations of the learner's performance
- Pedagogy designed to maximize learning—motivation of the learner, rate and degree of learning, retention of what is learned, and generalization of learning.

Pertinent questions include the following:

1. Does the guide implement new approaches to maximize learning?
2. Does the guide help the teacher to apply the above variables?
3. Does the guide give extensive pupil-participation activities to supplement the teaching process?
4. What kinds of options are built-in for the teacher so that pupils may work at several levels in learning and in thinking?
5. Is the program planned in blocks of time, that is, divided into blocks of teacher-guided instruction time and pupil self-direction time?
6. Are the processes for teaching described completely?

Interest and satisfaction can be experienced by teachers who co-operate in appraising the many educational innovations on the market.

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Linguistic Principles and the Selection of Materials

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FIVE YEARS AGO most teachers had not thought of linguistics in connection with reading, and few recognized authorities had related linguistic knowledge to reading instruction. In the intervening years linguistics has become a popular word in reading circles. It appears with increasing frequency in the professional literature and is popular at professional meetings. It also occurs repeatedly in the advertising for reading materials and in the instructional guides that accompany many of these materials. In short, use of the term has spread like wildfire.

While linguistics was becoming a common word in the vocabulary of reading professionals, linguistic knowledge began to be incorporated in reading materials. The amount, accuracy, consistency, and type of linguistic knowledge used in these materials varied drastically. Some materials made extensive use of linguistics; they were obviously different in content (and sometimes in format) from the usual reading materials. Other materials were advertised as integrating linguistic knowledge with more conventional

it, but often these materials ap-

peared little different from established materials that remained unaffected by the advent of linguistics. Of course, many of the materials with some claim to linguistic involvement fit somewhere between these two extremes.

During this time "linguistic materials" became the hottest item on the market. The magic of this label insured interest, even excitement. For the first time new series were made available book-by-book as they came off the presses. The conventional procedure of holding all texts until the whole series was ready was junked, meaning that often the first book in the series had been on the market and revised at least once by the time the last one was available. School systems sometimes committed themselves to materials without having the opportunity to study them. In such cases, it apparently was stylish to select materials that were supported by a claim to linguistic acceptability. An accompanying phenomenon was the rather dramatic increase of such reading materials on the market.

The linguistic method

The charisma of the term linguistics and the impact of the first linguistically based materials gave rise to three closely related misconceptions. All three are contained in the common expression "the linguistic method" which has been heard all too often in discussions of reading instruction. The first misconception is that there is only one approach to organizing linguistic content for teaching reading. A look at the various materials that include linguistic content shows the falsity of this belief.

The second misconception is closely related to the first. It is that there is general agreement as to the linguistic content to be included in materials for the reading program? Again a quick glance at the various available mate-

rials immediately makes clear how erroneous this conclusion is.

The third misconception is that there is one generally accepted linguistic method of teaching reading. Most authorities agree that so far no such method has been developed. What is often different is the content and its arrangement in the materials. But the approach to teach this content has been, for the most part, rather conventional:

These three misconceptions brought to light in the expression "*the* linguistic method" have had unfortunate consequences. Many practitioners have uncritically accepted the first program to come along that emphasized the word linguistic. The approach used in that program or any very similar one has become *the* "method" in their eyes. Thus, they need not look further; they are among the vanguard. If the fashionable thing is to use a linguistics program, then they are right in style. Frequently these people have been content that the linguistic knowledge presented in the materials is sufficient for full understanding of linguistics. A little further investigation makes clear that such a view is naive. The amount of linguistic knowledge now available simply precludes any such easy way of developing understanding.

Principles, criteria, and selecting materials

The use of linguistic principles in selecting materials to teach reading dates back only a few years. Other principles receive more attention even now. In any case, when principles are identified for selecting materials, they assume the status of criteria. Everyone who selects materials applies one criterion or more as a standard against which to measure materials. This standard provides a framework for analyzing the materials. Viewing principles in this light clearly outlines order and importance of the tasks

of those responsible for selecting reading materials.

Selectors must first compile a set of criteria comprehensive enough to cover all areas considered important. These criteria may embody psychological, sociocultural, literary, and educational principles as well as linguistic principles. For example, certain principles relating to the durability, attractiveness, and cost of the materials may be as basic to some selectors as any linguistic principle. In accepting these principles, no matter what their source, the selectors make them criteria for use in their analysis of available materials. The specific situation in which the materials will be used usually plays an important part in determining which principles to include.

After developing a comprehensive, consistent set of criteria the available materials must be analyzed to determine which of them most nearly meets the standard set by the criteria. The strengths and shortcomings of each of them must be determined. The one with the fewest weaknesses when measured against the standard provided by the criteria should be selected. Rarely will materials match the standard completely. The author probably used criteria that differed somewhat from those developed by any selector because only rarely are materials prepared for a specific local situation. The facts of economic life cause most publishers to strive for a larger market. Another element is that each situation differs from every other; each is unique. Variability of the children, the teachers, and the reading programs are basic factors accounting for the uniqueness of each situation in which reading materials are used.

The third task is the selection of the materials. It should be noted, however, that when the selectors follow the procedures outlined here, the actual choice of materials rests upon the development of an articulated, compre-

hensive, consistent set of criteria and the analysis of available materials based on these criteria. Selection itself comes naturally from the analysis of the materials according to the criteria established by the selector.

Representative linguistic principles

A couple of years ago at Wayne State over 200 principles that selectors might use as criteria were identified (1). Of these, about fifty were linguistic principles. The remainder were classified as psychological, socio-cultural, educational, or literary principles. Since then additional principles in all categories have come to attention. Among the more than 200 principles, many are seldom used as criteria in analyzing and selecting materials. Others are contradictory; selectors court difficulty if they include some criteria that conflict with others they have accepted. Another thing is evident: 200 principles are far too many to handle in any useful set of criteria. Each of these things holds true for the linguistic principles, too. A great many of them are seldom used. Conflicting principles are included, and fifty linguistic principles are more than most selectors would wish to accept as criteria in analyzing materials anyway.

Linguistic principles derive from the scientific study of language. Most linguists tend to reject the prescriptive approach of traditional grammarians. Descriptive linguistics seems at this point to have the greatest relevance to the teaching of reading. This conclusion could change as transformational grammar becomes more widely understood and used in reading circles. However, in this paper discussion will be confined to principles based on descriptive linguistics.

Representative examples of linguistic principles are embodied in the questions that follow. Each of these questions might be useful in establishing a for the analysis of reading ma-

terials for a given situation. Only those who must select the materials can make a judicious decision as to which, if any, of these will be appropriate. Better decisions can be made, however, if the whole range of possible linguistic principles is known to selectors. These examples, then, give an idea of the range of possibilities.

What provision is made for controlling grapheme-phoneme correspondence? The relationship between symbol and sound is rigorously controlled in some materials. Others ignore this principle. The Initial Teaching Alphabet is an attempt to provide a consistent and constant relationship between symbols and sounds. Each symbol represents only one sound in i.t.a. Other approaches using traditional orthography introduce children to reading in materials that are controlled to present only regular correspondence. Irregularities are withheld until later. From a linguistic view the task is to help the child understand the code: that letters represent sounds. This approach differs from the usual phonic one which teaches children that letters have sounds, for example, by stressing the sound of "s." The Bloomfield-Barnhart materials, *Let's Read*, were among the first to stress a consistent grapheme-phoneme correspondence. Others have been made available since. The irregularities of American English spelling make it impossible to retain a consistent symbol-sound relationship for very long. Thus, this principle probably has little utility as a criterion for analyzing materials other than those for beginning readers.

What focus is there in the materials on words as such? Many reading materials emphasize individual words in quite a number of ways. Children may be introduced to reading by learning a group of words by "sight." Often new words appear in teachers' materials as part of a list; instructions

for presenting them to children accompany this list. Word charts and flash-cards commonly are used. This emphasis on words seems so inescapable and correct that most adults do not question it. Yet linguists have found words as such difficult to deal with; the concept of a word is simply too fuzzy. They take spoken language as basic; printed materials contain speech written down. In written form, words come through clearly because there are spaces between them. This pattern is not always the case, however, in speech. The "gusinta" that many learned in division is a case in point. In written form there is no question as to the number of words, but in the normal flow of language the breaks between words are much less obvious. Is "gusinta" one word? two? or three? Another illustration of confusion for children is that "have to" is two words but "into" is only one. The point is that words are not always as clear as educated adults often take for granted that they are. Some selectors will choose the criterion that words should be emphasized in the reading materials because there is ample evidence that children learn to read using such an approach. Others will concede that children will probably learn to read if words as such are stressed but accept an opposing criterion that the larger units of language, such as sentences and strings of sentences, should be emphasized because meaning is generated by the flow of language.

Do the reading materials assume a single "correct" English? Teachers have long been aware that dialect differences are widespread. Those who teach reading have struggled with the problems that result from these differences. Many have reached the point at which they reverse the question in order to develop a suitable criterion: Do the materials provide for the pre-
 dominant dialect in a given local set-

ting? Linguists view all dialects as equally valid. This fact does not mean linguists are unaware that certain dialects are socially more acceptable than others but that each dialect is systematic and is deeply internalized by the child by the time he starts any formal reading program. The problem is that many children are penalized when the reading materials assume a standard or "correct" dialect. Often those to whom standard English is unfamiliar must learn a new dialect and learn to read at the same time. In most cases, present reading materials tend to give little attention to this problem: of divergent dialects. They contain little to assist teachers in understanding that the language of children is a matter of dialect rather than immaturity. A growing number of materials, though still a minority, use the children's dialect as a basis for the vocabulary. Experience charts are probably the materials that provide the best approximation of the vocabulary and syntax of children's language. Few materials of any kind, however, deviate from conventional spelling.

Do the reading materials contain the common language structures of oral language? One frequent criticism of many contemporary reading materials is that "people don't talk that way" or "that sounds awkward." It is not just a matter of choice of vocabulary; it comes when uncommon language patterns are used. The less-common language patterns simply do not sound "right." Often children try to "correct" the language of the materials to make it fit their oral language. When a child encounters "The boys were running" and reads it "The boys was running," he is not displaying a lack of knowledge of language but is making the printed matter fit the proper language pattern as he knows it.

A more basic difference between the common syntactical patterns in reading

materials and those in children's oral language is illustrated when children flounder upon encountering "'Jump,' said Joe." Children in the lower grades very seldom use the object-verb-subject pattern in their speech. To those selectors who accept this principle it is important that children have materials that enable them to use the cue systems of their own language without encountering built-in obstacles.

Do the reading materials relate punctuation to intonation? All reading teachers have had experience with children who read aloud with little indication of any understanding of the relationship between punctuation and intonation. The fact that the punctuation within the reading passage must serve as cues for appropriate intonation seems to have escaped these children. Yet, all children, as pointed out earlier, know that the end of a statement can be signalled by a limited number of phrase terminal intonations. And the children recognize each of these terminal intonations. Building on this knowledge carries greater possibility of success than does telling them that a sentence is a complete thought. After all, the latter stands as an abstraction that is often difficult to relate to language as even children know it.

The most common approach is for teachers to instruct children to "read with expression." Intonational cues provided by punctuation marks can be highlighted in reading materials so that children come to relate punctuation marks with intonational signals that have long been a part of their language pattern. A closely related linguistic principle may be found in this question: Do the materials encourage children to supply the natural intonations in reading?

Conclusion

These few examples of linguistic

principles that selectors of reading materials might include as criteria for analyzing materials illustrate phonemic, morphemic, dialect, syntactic, and intonation considerations. Other linguistic principles can be selected from each of these areas. In addition, principles concerned with the accuracy of language information as well as more general linguistic considerations might appeal to some selectors.

To make wise selections of linguistic principles, selectors must have some knowledge of the variety of such principles from which they might choose. They also must know the specifics of the situation in which the materials will be used: the children, the teachers, and the reading program. They should recognize that psychological, sociocultural, educational, and literary principles must be considered along with linguistic principles in order to develop a comprehensive, consistent set of criteria.

The wide range of reading materials now available makes a selector's task very difficult. The number of different basal series, supplementary readers, trade books, workbooks, review materials, tests, charts, cards, filmstrips, and teachers' guides increases almost daily. So many of these invoke the magic of the word linguistics that it behooves selectors of reading materials to know something of the linguistic principles they might use as criteria for analyzing these materials. The selection of the most appropriate materials from among those available requires wisdom and knowledge in choosing the criteria that will guide the selector.

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Practical Problems of Schoolbook Selection for Disadvantaged Pupils

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TODAY one of the great challenges to teachers and school officials is to provide disadvantaged pupils with suitable reading materials. It is a well-known fact that many disadvantaged pupils are struggling with texts they cannot read. They find the language unintelligible because it is so unlike that which they speak.

The money wasted annually in purchasing unsuitable schoolbooks runs into millions of dollars. But a much greater waste is that of human resources. Many disadvantaged pupils unable to read their schoolbooks fail and drop out from school. Adults who have not learned to read are unable to inform themselves of their duties and rights as citizens; they cannot attain employment in keeping with their native capacities; nor can they keep up with advancing knowledge.

Children's needs. To correct this situation, committees having the responsibility of selecting textbooks must solve several important problems. The objective of all schoolbook selection is to find out which books satisfy the needs of the pupils. So the first problem is one of selection: What kinds of facts reveal best the type of reading materials needed?

Research (3:171ff) indicates that such facts as these are helpful: 1) age of the pupils; 2) level of maturity, both intellectual and emotional; 3) interests and motivation; 4) experiential background; 5) culture from which the pupils come; 6) status in reading; 7) oral language development; and 8) difficulties experienced earlier in learning to read. Without such knowledge pupils, there is no valid basis for

the examination and comparison of books.

Standards of evaluation. A second problem: What standards should be used in evaluating school books? In other words, what qualities or characteristics describe the merits and limitations of the books in light of the students' needs? Let one illustrate by reference to basic readers. Many disadvantaged pupils show no interest in, or motivation for, reading; so one important standard is interesting and attractive illustrations that will entice the pupils to read. Many disadvantaged pupils are seriously retarded in reading ability; so another standard deserving much emphasis is ease of comprehension or readability. If the pupils are ready to begin dictionary work, still another standard relates to the usefulness of the glossary in the readers.

Methods of evaluation. When all the essential standards have been defined and agreed upon, the selecting committee faces the difficult problem of determining the methods to be used in evaluating the sample books. Observation shows that current methods of evaluation vary from the briefest consideration of books to very elaborate analyses, from questionable to sound practices, and from altogether subjective to scientific technique (5). Unfortunately, few of the methods in use are designed to obtain objective data. As a result, books that merely look promising are often selected. Then the teacher who must use a book unsuited to his pupils finds it difficult to turn learning into an exciting and successful experience.

To illustrate the use of objective technique, assume that a committee is responsible for choosing a basic reader. The members have recognized that the value of a book depends on many qualities and that the book may be superior in one respect and yet so deficient in others as to be of little value. So

rather than attempting to appraise each reader as a whole, the committee members have set up definite standards of evaluation. Among these are the three mentioned earlier—interest appeal of the illustrations, readability of the content, and usefulness of the glossary. These three were chosen because they deal with quite different aspects of a book. But it should not be inferred that facts about these few items would constitute a sufficiently comprehensive examination.

Illustrations. What objective methods can be applied to all the books alike to obtain reliable facts as to their relative merits? This question will be considered first, as it concerns interest appeal of illustrations.

Research (4) has shown the kinds of illustrations children like best. The findings should enable those who select books to increase the validity of their judgments. These facts concerning illustrations are known:

1. Illustrations may exert a negative as well as a positive appeal.
2. The larger the total number of illustrations in the book, the higher the interest value. This point holds true up to an undefined point of saturation, at which a textbook becomes a mere picture book.
3. The larger the average size of the illustrations, the higher the interest value, other things being equal.
4. An illustration in several colors has greater merit than one that is black-and-white. The artificial use of a single color other than black is less appealing than the realistic use of several colors.
5. An illustration with a center of interest that draws the eye to a particular point offers greater appeal to children than a picture with no recognizable center of interest or one subordinated by too many details.

6. The more action and the more interesting the action, the more appealing is the illustration.
7. The subject matter of the illustration has a marked effect upon its interest to children. Eventful topics depicted in the illustration have greater merit than still-life topics.

By applying these standards to all or an adequate sampling of the pictures, each book under consideration can be given a rank as to the interest appeal of its illustrative material. Without such definite appraisal of the illustrations, the purchasers of books may unknowingly choose a book which handicaps even the best teachers in developing interest in reading by visual means.

Reisman (3:326-332) has stressed that disadvantaged pupils learn best through concrete, active approaches such as role-playing and dramatic representation. A reader with illustrations, ranking high according to the foregoing standards, can be a distinct aid in suggesting the action and conversation in role-playing.

But disadvantaged children also need illustrations depicting characters with whom they can identify. In other words, the color bars must be broken. The pictures should show nonwhite people in as favorable a light as white people. So each illustration or a sampling should be inspected to see the extent and character of the integration, and tabulations of the results should be made. For example, is there any built-in discrimination such as depicting Negroes as bystanders, naming white characters only, putting the stories of Negroes at the back of the book, presenting Negroes in menial positions, and not depicting the professional Negro and others of high status?

Ease of comprehension. The second standard is readability. Unfortunately, many children have to struggle to un-

derstand what they read in their textbooks, not because they lack the basic reading skills but simply because the language is too difficult. Add to this for children of minority ethnic groups retardation in the use of standard English, and it is obvious that they face impossible reading tasks. As they progress through school, they fall farther and farther behind. Not only do they average one or two years overage for their grade, but they are also retarded in reading an additional one or two years. When such pupils are given the typical textbook for the grade, is it any wonder that frustration sets in?

This situation can be overcome only if book selection committees predict reading difficulty as objectively and accurately as possible and consider the implications of the findings for the particular children:

During the past forty years, various investigators have been experimenting with the development of statistical formulas to measure reading difficulty. Beginning with the Winnetka formula, devised by Vogel and Washburne, at least six such formulas have been constructed. The use of the typical formula involves the systematic sampling of running words and analysis of the data to discover frequency, complexity, and sentence length. Publishers have used the formulas in adjusting the difficulty of schoolbook manuscripts, and school officials have used them occasionally to estimate the reading difficulty of new books.

It is now known that the statistical formulas may be more misleading than helpful. When several different formulas are applied to the same book, the ratings secured may vary a grade or more. Recently Bormuth (1:82) reported that the validity correlations of the formulas range from .5 to only .7. So after using a formula, a committee may think that a text scores high in ability when it actually does not.

At least two important advances have been made recently in the development of precise readability formulas. First, Bormuth (1) has derived a large number of entirely new linguistic variables which have a high correlation (.934) with passage difficulty. Second, he has shown that readability formulas can predict difficulty as well for pupils at one grade level as for those at the other levels. Thus, while one cannot recommend readability formulas at present, doubtless in the future they will be greatly improved.

Also, by reading in the area of readability, a committee member can become much more sensitive to the difficulties of words, clauses, and sentences.

Until valid formulas are available, book selection committees may test the difficulty of the book in the hands of the pupil rather than depend on mere consensus of opinion. However, there is need for controlled procedures. A valid trial is dependent upon observance of the principles of experimental technique. As far as possible, factors other than reading difficulty should be controlled so that they will not affect the results. For example, identical procedure should be followed in making comparative trials of different titles. The number of pupils participating should be large enough to insure statistical reliability of the data. The directions for the test should be clearly defined.

One type of test that can be objectified is that of using a sampling of passages from each book as oral-reading tests. This technique reveals the mechanical difficulties of the language used. It involves giving a standardized oral-reading test to the pupils, systematically sampling passages from the different books, using them as oral-reading tests, and comparing the children's scores in accuracy on the tests with those on the unstandardized passages.

In such a test ten Detroit teachers cooperated in appraising six fourth-grade readers. Participants were an equal number of boys and girls who made average fourth-grade scores on the Gray Oral Check Tests. Permission was obtained from the publishers to use mimeographed copies of the sample passages in order to rule out the influence of such factors as illustrations and differences in type face.

The results obtained were surprising. Of the six readers, only one approximated fourth-grade reading level. Even in that reader, certain stories were much harder than others. The five other readers varied widely in difficulty as shown by the number of errors made in reading them.

Similarly, a sufficient sampling of passages might be used as silent-reading tests, and the cloze technique, used to test comprehension. According to Bormuth (1:82-83) a "cloze test is made over a passage by replacing every fifth word with an underlined blank of a standard length. Subjects are told to write in the words they think were deleted and responses are scored correct when they exactly match the words deleted." Scoring synonyms has not been found to increase the validity of the scores.

Hafner's discussion of readability problems (2) includes ideas that can be used as standards in inspecting books page-by-page. Examples of the standards are short sentences, few long words, use of nouns and verbs as opposed to adjectives and adverbs, and style that is concrete rather than abstract.

Glossaries. The usefulness of glossaries in children's basic readers is a third important standard. Recently there has been a trend toward earlier teaching of the use of the dictionary. Preparatory glossaries have been appearing in readers as low as the third grade and picture dictionaries, even

A glossary in a third reader can be a very useful aid in developing dictionary readiness. It can afford practice in noting alphabetical position and sequence and in obtaining the meaning of new words.

Inspection of the glossaries in four third-grade readers shows that they include: pronunciation keys similar to those in beginning dictionaries; illustrations, either colored or black-and-white; descriptions below the illustrations, consisting of a word, a phrase, a sentence, or a paragraph; definitions that give one or more than one meaning of the word; and sometimes sentences to show how the word is used.

But a book-selecting committee must probe deeper to discover the real value of a glossary for disadvantaged pupils. Will the pupil be able to read and understand the definitions given? Do the definitions show vocabulary control? Vocabulary control is especially desirable since by definition a *glossary* is intended to clarify word meanings.

A little "detective" work can indicate the readability of a primary-grade glossary. All the examiner has to do is to take a sampling of the entry words, locate the page on which each word is introduced in the reader, and check to see whether all the words used in defining it were previously used in the readers.

Four glossaries the writer examined showed no vocabulary control. Definitions of the entries not only included words that had not been taught but also used words that seemed harder to understand than the word being defined. For example, the word *language* was defined as human speech; *business*, as a commercial enterprise; and *diesel*, as an engine that burns oil with heat caused by the compression or a condensing of air. The introductions to the pronunciation keys also lacked vocabulary control. A pupil could use the key successfully only if he had mastered many skills.

Obviously, in the books examined the portion devoted to the glossary is wasted when put in the hands of disadvantaged third-graders.

In conclusion, this paper has stressed three main points: 1) that every year the purchase of unsuitable books for disadvantaged children wastes millions of dollars; 2) that the selection results in extensive reading failures; 3) that to overcome such waste of money and human resources, book committees need to employ reliable standards and methods of evaluation which will obtain facts about books and thereby aid in identifying appropriate books for disadvantaged children. Any sacrifice of time, effort, and expense is justified to this end. For disadvantaged children will respond to instruction only when they are given superior schoolbooks—superior in the sense of being far, far better adapted to their needs.

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Selecting Appropriate Materials for Disadvantaged Junior High School Students

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should be a beacon illuminating the foyer of educational institutions throughout the land. The law states that "behavior which is satisfying tends to be repeated." Needless to say, this law was not established for the purpose of being used with disadvantaged children; however, it does seem to be a premise which should be established and a pedagogical practice to be followed when working with the disadvantaged child.

Reading ability

Many research studies have been done recently using disadvantaged children as subjects. Most of these studies have concluded that a great majority of disadvantaged children are retarded in reading. It would naturally follow then that these children would not find reading to be a satisfying experience and, therefore, would not be enthusiastic about practicing this essential skill. Without the necessary practice, reading efficiency cannot be increased; and reading skills tend to become even more deteriorated rather than ameliorated.

Selecting materials

This lack of reading skill on the part of the student will be a major challenge to the teacher of the disadvantaged youth. Studies have been done that have shown the areas of interest which this youth enjoys; it then becomes the unenviable task to match the interest of the individual child with reading material commensurate with the child's stage of skill development. This task is much more easily stated than accomplished. However, it is because of this difficult task that an individualized approach to the selection of materials is quite necessary for the disadvantaged children. In initiating an individualized-material-selection approach the teacher must start with interests which the student already has manifested. These interests are usually

the result of community environment or peer-group relationships. The teacher must be quite delicate here not to attempt to superimpose rigid standards of material selection. It has been demonstrated quite often that the easiest way to restrict pupil enthusiasm is for the teacher to give a particular book or set of materials a "sales pitch." Disadvantaged adolescents are more interested in winning and retaining the respect of their fellow students than they are in satisfying the requirements of their teacher and, therefore, the "sales pitch" technique is not appropriate. This does not mean to say that the teacher should not be enthusiastic about the many tasks to be accomplished in the total reading program. It merely means that an extra effort needs to be made to involve students in the sharing of materials and hopefully through this process to kindle new interests and tastes in reading and concurrently develop proficiency in the many reading skills. It may seem that one has come to a point where an either/or selection must be made. Either one builds on the interests of the child and thus hopes to develop proficiency in reading or one attacks his reading deficiencies and then begins to extend the interests and tastes which lead to a mature reader. The selection in this dichotomy should be quite clear. One must start with the interests, develop proficiency, and with the aid of both open the doors to the ever-changing world of the printed page.

In order to individualize material selection, Spache reports in his book, *Good Reading for Poor Readers*, that some school systems have attempted the use of various formulas to prescribe books for children of varying abilities. Some have chosen to divide the sum of twice the mental age and the chronological age by three to find an average which is tended to express relative interest of the child.

Formulas such as these must be used with extreme caution when working with disadvantaged youth. A major caution is in the measurement of the child's mental age. If the instrument used to assess the mental age was predominately a reading test or a measure of other verbal skills, the disadvantaged child will often be underestimated, and, therefore, a formula such as that given above will compound the error, express lower levels of interest, and inflame rather than extinguish the embers of reading remediation.

In the text, *Essentials in Teaching Reading*, by Eddie C. Kennedy there are listed seven criteria which should be of value in selecting either books or exercise materials for reading programs. The suggestions given are that materials should be

1. Written for the specific purpose for which they will be used,
2. Varied enough in form and content to give all practice that is required,
3. Well within the ability range of the students with whom they will be used,
4. Well written and printed in easy-to-read type,
5. Written so they may be used independently by students,
6. Easy to evaluate after they are completed, and
7. Available in quantities large enough to meet classroom requirements.

Bibliotherapy

After having guided the learner in the selection of materials for both reading instruction and recreational reading, the teacher may extend activities to the area of bibliotherapy. Through this phase the teacher may aid the disadvantaged child in solving certain of his personal adjustment problems. This form of aid may be rendered by having youngsters discover that they are not alone in their

dilemma of development and also by encouraging them to seek a better environmental atmosphere to continue their complex growth. It is often a shock for a child to see another person in the same or similar circumstance as his own. When working with the disadvantaged, this removed type of identification with the problems of others can help to remedy, or at least accept, some of the problems which the child is experiencing without damaging or threatening an already-strained ego. Bailey, in *Education* (May 1956) lists five general types of insecurity that reading can help the child to overcome:

1. Those based on his relations with his peers.
2. Those based on family relationships.
3. Those resulting from repeated failures.
4. Those based on economic factors.
5. Those based on physical factors.

This form of therapeutic aid is not new to schools or teachers. The *New England Primer* even contained such eclectic cautions as:

"He who ne'er learns his A, B, C's,
Forever will a blockhead be;
But he who to his book's inclined,
Will soon a golden treasure find."

Many critics of the bibliotherapy method warn that by using this method one may encourage children to forget or divorce themselves from reality and, thus one may promote poorer personal adjustment and in turn encourage the manifestation of even more-limited reading maturity. To this criticism one can only respond with an ever-increasing faith in one's professional judgment to meticulously balance the child's exposure to materials of reality and those designed to promulgate personal improvement.

Summary

The task of selecting materials for the disadvantaged junior high school student is a difficult one for both student and teacher. It is more than assigning required reading lists or recording interests by the use of standardized scales. It is a task which is individual by nature and eternal by degree. To oversimplify, it is putting the appropriate materials in the hands of the receptive learner at an opportune moment—not an easy task.

THE ROLE OF THE LIBRARY AND LITERATURE IN THE READING PROGRAM

The Library's Changing Role in the Teaching of Reading

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School District

BEFORE discussing the library's role in the reading program, the writer finds it necessary to set a stage that most teachers are not willing to face. Teaching, as one knows it today, will become obsolete ten short years from now—a very short period of time. The role of the school principal, also, will be changed dramatically. Successful experiments are already under way to have noneducators become the principal or plant manager. The teachers' unions may not be too far wrong in their predictions concerning administrators and supervisors and the role they will be playing in the future of education. However, the librarians will face the most drastic change of all.

So many drastic changes already have taken place in the last few years that at least 90 percent of the library programs already are completely outdated. Yes, even at the elementary school level! Recently the writer heard a fellow administrator mention that "a giant is at our doorstep and knocking on the door." This statement is typical of administrators in that they (the writer included) are always a step or two behind the times. The giant is not at the doorstep; he is already in the schoolhouse, and unless one adjusts the furniture inside it and the type of educational family life existing therein, the giant undoubtedly will cause a great deal of turmoil and

havoc. He may even deal a death blow.

Who is this giant? His name simply is "individualized learning." During the next ten years one will see unbelievable and fantastic changes in education, changes absolutely necessary due to life in an amazingly scientific world. Educators today are involved in an educational revolution; if not, they should be. The amounts of money spent for teachers to attend meetings, such as the IRA not being made available so one can return home and continue doing everything the same old way. Medical doctors, engineers, architects, and other professional people attend conventions, for the most part, to learn new and exciting methods. However, too often educational conventions serve as vacations, and people are anxious to attend because the travel is broadening. Often one goes home with a few disgruntled reports and says, "Yes, I heard some kook recommend doing away with principals, librarians, and even teachers." At conventions and other meetings, those in education normally react with trigger-like emotions whenever they hear ideas that are different from their own.

If the idea of educational tv had been presented just twenty years ago, most educators would have considered it a joke and rejected the idea.

A librarian friend recently said that books and the classroom will never be

replaced. Well, books will be replaced, especially resource books, and so will libraries as presently described. The tremendous increase in scientific and technical knowledge in the past decade is already necessitating change.

The field of education is in constant change. Educators will be hard pressed to keep up with the times. As a boy growing up in a Dutch atmosphere in Pennsylvania, the writer attended a typical country school during his first eight grades, all eight grades being held in two rooms. One day school was dismissed so that all could walk to a nearby hill and wait for a great new dirigible to pass overhead on its way to Pittsburgh. What a fantastic machine! It was unbelievable, traveling through the air at 60 miles an hour and carrying thirty passengers. Little could one have dreamed of the present. The writer's closest boyhood pal could not possibly have imagined his present destiny, because his present professional field did not exist. He attended the nearby Massachusetts Institute of Technology, and today he is a leading scientist working with the peaceful development of nuclear energy at the new nuclear power plant at San Onofre, California. He had much to do with its development and believes that today is only the very beginning of an era. When one reads about training students for jobs of the future that do not exist today, he should remember that millions of people are employed in industries that were not in existence when present educators were in school.

What does the term micro-electronics mean? This process is permitting a great revolution in teaching at all levels. This giant is in the schools and particularly in the libraries. Yes, the giant is already in the libraries and many, many more giants are yet to come. Is one going to stubbornly resist this great advancement? The fan-

micro-electronics industry is less

than ten years old, and yet one is already seeing the beginning of student centers with TV computers, talking typewriters, and many other new and exciting processes.

Is one really aware of the importance of the micro-electronic developments in relation to school libraries? Can one really comprehend what is occurring and what will occur in the very near future due to these new processes. The writer remembers not too many years ago being amazed at the delicate detail involved when seeing The Ten Commandments reduced to such a small size that they were printed on the back side of a copper penny. Truly amazing? Now it is possible to film the entire Bible on an area half the size of a penny. Micro-electronics forces one to revolutionize his thinking about books, documents, and other media.

All educators today are aware of the great mergers taking place in the business world between publishers and manufacturers. Companies do not spend vast sums of money if they do not expect a profitable return. Business speculators have noticed with open eyes that the federal government is putting more and more money into the general field of education. They further realize that this trend is only the very beginning. When the present war subsides, billions and billions of money presently going for military budgeting will be poured into education. This funding will spur innovations as never before. The surface of the future in education has barely been scratched.

School libraries are presently caught in the middle of a great educational hurricane. As one ventures more and more to individualized instruction, one will find that the role of the librarian and teacher will overlap to a much greater degree than commonly found today.

Only in recent years with the advent

of Title II money have many elementary administrators thought much about libraries. Although school principals agree that libraries are fine to have, school boards have traditionally frowned on spending money for elementary school libraries for a variety of reasons. Basically, it has been felt that student research to any great degree is for older and more mature students and that the concept of textbook-centered teaching is the best approach for the elementary school age child. One now finds that because of this type of thinking, one has failed miserably in many areas of elementary education. Educators at all levels find that good, active library programs enrich all phases of instruction, including reading. However, there is also a growing awareness that to merely establish a traditional type of small library at each elementary school or high school will not work if that is about all that is being done. Just a place to check out books every once in a while will not help a reading program or any program for that matter.

A major obstacle in the road to success is that many school librarians are suffering from psychological arteriosclerosis; hardening of the mind, in other words. Try to point out the fact to most librarians that the Dewey Decimal System is already a method of the past in view of the new machine systems being developed and one will understand what is meant by arteriosclerosis of the mind. When the Dewey Decimal System is challenged, librarians suddenly become very rigid and operate with a closed mind. The librarian and her approach to education must change rapidly and immediately.

But, what can one take back to school that will affect the reading programs? All are convinced that school libraries, when properly integrated into the total curriculum, increase a child's reading program. Most, how-

ever, are not in agreement as to how this integration can be done. Most current research indicates that the most effective way of making full use of the library is through flexible scheduling.

There are many variations of maximum use or flexible scheduling that appear to be the most effective methods in improving the total school program, including the teaching of reading. Reading programs benefit more from good, live library programs than from any area in the curriculum. The type of flexible scheduling will often depend on the school program offered; however, the writer has not seen a single library program that could not fit some form of flexible scheduling into its format. The maximum-use library may be used without a regular schedule at all, and there are dozens of ways in which a library teacher may work with the children. The most common, of course, would be working with individual and small groups. Flexible scheduling must have some type of full-time staffing throughout the day. By the way, great success has been seen in the use of teacher aides as library assistants working with the teachers and their daily programs. One focal point to always keep in mind is that the most effective library use occurs when cooperative planning is used by the teachers using the library and those helping to supervise it. Libraries which are available to the students just once a week will not be too useful as far as upgrading a school reading program.

The most informative and interesting research on school libraries that the writer has read is a master's thesis entitled, "A Study of Schedules that Promote Maximum Use of Elementary School Libraries," by Wilma Jean Charles, an elementary school librarian in West Palm Beach, Florida (1). Her research, completed only last summer, is fairly up-to-date. Miss Charles had

71 participant schools from a geographic cross-section of the nation. Schools varied in size; some were rural, others were located in large metropolitan areas. Twenty-seven schools had inventories with fewer than 5,000 books; thirty-two had from 5,000 to 9,999; six libraries had more than 10,000 volumes. Audiovisual materials were housed in 40 schools. Two schools had two or more full-time librarians; forty-nine had one full-time librarian; twelve schools had part-time librarians; six were staffed by non-credentialed clerks. Fifty-one indicated some fixed scheduling in maximum-use programs. Forty-eight scheduled 71 primary classes for story periods; thirty-three scheduled intermediate and upper-level library instruction. Once a week story times were scheduled in 39 schools and 4 had twice-a-week story times scheduled. Fifty-one schools remained open for small and individual use, even when scheduled classes were present and not all of these were extremely large physical units. This survey revealed that approximately 90 percent of the librarians and people involved in this research felt that improvement was shown when their libraries went to a maximum-use program with some combination of flexible scheduling. But, the most important statistic is the one that shows that 70.5 percent believed that the teachers were making greater use of the library facilities when some form of maximum use/flexible scheduling was involved.

One librarian sent back a completely negative reply and stated that when one uses flexible scheduling the program is not well rounded and too much control is placed in the teacher's hands; and, she stated, that in spite of her efforts the teachers did not instruct in such a way as to make proper use of the library. Also, she stated that this type of scheduling could only work if or teachers were employed.

Picture this librarian and the school. Was she trying to say that the only superior person in that school was the librarian?

Santee School District California Plan. Is it possible for a school or a district to begin libraries without the services of a librarian? The answer is an absolute "yes!" Is it possible to run maximum-use libraries without professionally trained librarians? The answer is an emphatic "yes!" Are the answers to these questions shocking? Since the writer was involved as an administrator in a district which established school libraries without the aid of a single librarian, the last portion of this paper will relate this experience.

The Santee School District is located in a suburban area of San Diego, California. Last year saw the opening of the 7th school and, due to the fact that Santee is a rapidly growing area, two more school units are on the drawing board. The Santee district is well known in the area of California as being one which is willing to try new educational ideas. The Superintendent of Schools, Charles E. Skidmore, has become a leader in the school evolution that is taking place in the type of modern school buildings and flexible programs being used today. The Santee School District has been allowed to try new and different methods due to a forward-looking school board made up of professional people, and it has allowed the teachers and the administration freedom to help plan the future and types of schools and programs in which they will be involved. The newest school is one of the most modern and flexible schools in America; and it, along with two other schools, has complete team-teaching programs from kindergarten through a departmentalized junior high school. The school features a continuous progress program, and the three remaining schools have a combination of flow

pattern and departmentalization in most grades.

The district uses contracted library and audiovisual services from the county education center. Several years ago the teachers and administrators felt that school libraries were needed in each school in order to help reinforce reading and other programs. The main problem was the fact that money was not available out of district funds. Santee has very little taxable income from commercial property, meaning one operates within a tight budget. In organizing libraries the school principals involved their P.T.A. groups and staffs so that in a relatively short period of time libraries were started in several schools. An NDEA project helped tremendously, as did Title II. Two years ago a classroom was set aside in each school as a combination library and instructional center. Each of the schools employs a reading specialist who worked closely in the development of the libraries. Children being instructed in various forms of reading were actually taught in the school libraries. These children were below average in reading, and one wanted them to come to the library for instruction so that perhaps they could develop more positive ideas about reading and libraries in particular. These children found that the library is a happy and exciting place. Parents volunteered to become library clerks throughout the day, and last year the school board authorized the hiring of library aides for each school so that the libraries could be open before and after school, during the noon hour, and throughout the regular instructional day. Most schools are using a combination of flexible scheduling so that the children may come to the library when the need arises. Intelligent aides who were easily trained were hired. They have proved to be efficient in working with both teachers and children. In most

schools the reading specialists coordinated efforts with teachers, parents, and administrators in actually organizing the libraries, selecting books, and other materials. They also taught children the proper use of libraries and worked out solutions for the needs of both the teachers and the pupils. The results have been excellent.

Several of the schools currently place all books received from the county in their libraries. These include recreational readers from all grade levels. When a first grade child, for example, finishes a book, he has an opportunity each day to go to the library and exchange his book if he wishes—often during class time. At first, this procedure alarmed some teachers; however, it has worked out very well. All school encyclopedia sets were taken out of the classrooms and placed in the libraries. Now, instead of having access to one or two sets, students may use ten sets if they wish, and they are permitted to take them to their rooms for part of the day. The result is a far greater and better use of the encyclopedias. The library program has been so successful from the start that last summer the district remodeled each library classroom by installing paneling, wall-to-wall carpeting, and much additional equipment. All of this work has been in a district that is still growing and in which classrooms are actually needed.

Santee is now anticipating its own district library services and recently has hired a librarian to coordinate these efforts. She, too, has been amazed at the fine school libraries.

Perhaps no solution has been given here to problems that may exist in other schools in relation to libraries and reading programs. One hopes, at least, to have given food for thought so that when the reader hears in his own school suggestions for change or the word "computer," perhaps at least he will pause and think about the follow-

ing: Is the purpose of school *teaching or learning*? If one truly believes that the purpose is *learning* then maybe one will be able to adjust to the ever-changing environment. Perhaps one will be able to adjust libraries and thinking to accommodate the "giant" who is already present. In closing, one should remember that at one time on this earth the most powerful living thing was the dinosaur. Even though he was powerful, strong, and mighty, he could not adjust to his ever-changing environment. The question the reader must ask himself is, "Will I become an educational dinosaur?"

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Evaluative Criteria for the Elementary School Library

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WHEN THAT DELIGHTFUL and not altogether nitwit family the Peterkins, were lamenting their need for wisdom, the lady from Philadelphia having gone away, Agamemnon, who had been to college, suggested that a library was just the thing to help them out of their dimwitted dilemma.

"I will make a library," said Agamemnon. "There are some boards in the woodshed, and I have a hammer and some nails, and perhaps we can borrow some hinges, and there we have our library!" (3).

Even today educationists occasionally plan libraries with no more real knowledge of what they are than Agamemnon possessed. All would join Agamemnon's little brother, Solomon John, in recognizing the need for

and nails. But after that, when asked for specific criteria for a library program, would not many educationists have to join Solomon John again? Solomon John, at long last and after much family travail in assembling material for writing a book, sat down, "dipped his pen into the ink and held it over the paper, and thought a minute, and then said, 'But I haven't got anything to say'" (3).

Such a comment may not have been of major significance for Solomon John. Such a comment from leaders in education asked for evaluative criteria for school libraries would be disastrous. Faced with an explosion of knowledge as significant as the explosion of population, educators have begun to realize that a major goal of education must be to train children to make intelligent choices, a goal as many-faceted as the numbers of knowledge-and-opinion-producing media are great. Since value judgments in making intelligent choices must involve an awareness of how choices are made—must involve establishing the habit of looking at all sides of a question as presented in all media of communication from a variety of sources—the old textbook-oriented education of one question, one approach, and one answer has fallen into disrepute. An acceptance of the school library as the learning resource center of the school is general now throughout the United States, though adequate school libraries throughout the land are still far from universal.

The evaluative criteria for school libraries reached the forefront of educational importance with the 1960 publication by the American Association of School Librarians of the *Standards for School Library Programs*. Though *Post-War Standards* had been published in 1945, little attention had been given nationwide to any level but the high school library; but the implementation of the 1960 standards began to

focus attention upon the sad state of library affairs in the elementary schools as well. Now in 1968, with the projected fall publication of *Standards for School Media Programs*, a joint product of the American Association of School Librarians (a Division of the American Library Association and a Department of the National Education Association) and the Department of Audiovisual Instruction (A Department of the National Education Association) a more truly up-to-date publication fully recognizing the necessity for a unified multimedia approach to education will be available. Curricular innovations demanded by a constantly changing society, however, are so frequent that even these not-yet-published standards may be in part obsolescent, if not actually obsolete, before they are printed. Yet the foundations upon which they rest—accessibility and equal educational opportunities for all—will remain unchanged through the years to come.

Accessibility imperative

Evaluative criteria for elementary school libraries would be a simple matter for discussion if the criteria were merely a quantitative affair: so many square feet per pupil; so many listening stations with dial access to "banks" of varied sources of knowledge; so many books, magazines, newspapers, pamphlets, films, film-loops, filmstrips, tapes, recordings, transparencies, flat pictures, maps, globes, realia; so many pieces of equipment; so many professional librarians; so many technicians; so many clerks. But the foundation for a lifetime pursuit of education is not laid by instructional resources alone. Not even by adding to a notation of quantity a stress upon top quality of quarters and materials can one achieve a comprehensive picture of evaluative criteria for elementary school library programs that will enable teachers to teach more effectively and

pupils to learn better. Emphasis must be placed upon less-measurable matters. Emphasis must be placed upon the people involved in the program and the uses they make of the materials of learning; for in the final analysis it is the professional librarian that must be responsible for the accessibility that is the most essential ingredient of any school library program.

The 1968 *Standards for School Media Programs* will stress the necessity for adequate staff to make accessible any body of learning resource materials. Even the most superior collection, representing the widest range of varied media, is not completely accessible unless it is organized for use and made physically available at all hours during the school day and numerous hours outside the actual time when classes are in session, such times to be determined by need in each specific situation. Only an adequate and competent professional staff can accomplish this goal—a staff that realizes the necessity for flexible hours and as few rules and regulations as possible; a staff that recognizes the need for fluid, changing classroom collections of books and other learning materials and the equipment necessary for their use by numbers of children working simultaneously on similar projects in their school library, in their classrooms, and in their homes. The elementary school library becomes a true clearing-house, never a storage house, for the resources of learning. Everything circulates, especially the librarian.

It might be well to further emphasize the fact that when there is an elementary school media center—a true library—that meets evaluative criteria fully, there are more instructional materials accessible throughout the school than would otherwise be the case. Basic information tools, such as encyclopedias, dictionaries, maps, globes, and even sets of supplementary texts, will be available in classrooms on loan

for indefinite periods of time. Such materials, however, are the responsibility of the library for acquisition, processing, recording, for upkeep, and replacement. Responsibility for selection is, of course, shared by informed teachers who safeguard qualitative standards, just as does the librarian, at all times.

Teacher involvement essential

True accessibility of material in the elementary school library that meets evaluative criteria places emphasis upon the use of that material. No longer does the librarian feel her job is accomplished by providing well-organized materials and teaching pupils how to find that material in the library. Training in the proper selection of appropriate media for varying objectives and training in the evaluation of those media and in the intelligent use of materials so that the formation of critical value judgments by the students becomes established procedure from the first grade on, are the responsibility of the librarian working cooperatively at all times with the teachers. It must be kept in mind that teacher involvement is a necessity in any effective school library program, an essential element in all evaluative criteria. It is unrealistic to expect every classroom teacher or subject specialist to keep informed about sources of materials and new types or new materials in established media; it is just as unrealistic to expect a good library program to develop in a school with a disinterested or apathetic faculty. The best library programs grow out of enriched classroom programs and back into them. Classroom teachers who demand library materials in their multimedia approach to learning must be involved in the selection as well as the use of those materials if a truly functional collection is to result. Implementing this involvement is the responsibility of the professional librarians who must be

employed in numbers sufficient so that in any school teachers can depend upon the librarians to provide a wide variety of services as well as a comprehensive body of effectively organized materials.

Librarians work with teachers not only as consultants and materials specialists but also as producers of materials not commercially available but needed by teachers for specified purposes in teaching projects. Librarians provide in-service training in the use of new materials and, through the facilities of a well-balanced and up-to-date professional collection, make available research and innovative developments in educational methods and procedures. Ideally, this professional collection is available to parents as well as teachers, for the whole community should be involved in the library program to make it effective. Librarians work with teachers in providing a program of instruction in the use of the media center and its resources, planning time for such cooperative efforts being provided in the daily work schedule. Thus the elementary school library program becomes the joint responsibility of teachers and librarians working as a team, not operating in tandem but pulling side by side. It is important to note, also, that the most effective programs within individual schools are those with supplementary services provided by district or regional media centers and with the entire learning resources program operating under standards that regard the ideal school library not as a goal desirable in itself but as an essential means of achieving the goal of every school; namely, quality education for all children.

Reading guidance major service

Evaluative criteria for school library or media programs are the same basically for every level of the public school system, since they focus upon

facilitating the learning process for large groups, small groups, or individuals. Yet this focus, emphasizing as it does the promotion of the educational objectives of the school, results in certain differences in the types of services emphasized at the various levels. At the elementary level, the reading guidance function of the media center is of major importance, for it is in childhood that the reading habits of a lifetime are most frequently formed. The words of Melvil Dewey spoken so long ago remain just as valuable today as reminders of our educational responsibilities:

The great function of the teacher, to which he should bend every energy, is to give pupils under his care a taste for reading. . . . I should vastly prefer my own child to leave school with a strong taste for good books and a record of comparative failure in his studies, than to have him take all the honors in his examinations and begin life with no genuine liking for reading (2).

The elementary school library must assume a major role in helping children to become habitual readers—readers of discrimination who have learned by wide and varied sampling to choose worthwhile reading as help and inspiration in daily living throughout their lives. True, every child may not become a critical, habitual reader, but he must be given the chance to become one. The school remains the only social agency through whose doors every child in America passes at some time in his life. The school library is the only agency that can offer every child a chance to develop his reading abilities to their fullest potential. If the child elects later not to read—as even some highly intelligent children will—it will not be because of unfamiliarity with good books, provided he has been introduced to them as a captive audience in a school library situation.

Supplying good books for every child means the child on every reading level and all levels of mental capacity,

and in respect to personal as well as curricular needs. Before such a collection can be supplied, the retarded reader must be identified and his problem analyzed so that it may be solved; the gifted child must be recognized and materials of appropriate enrichment be provided before a lack of challenge in his daily school work drives him irrevocably into mediocrity.

Merely supplying good books for every child does not complete the reading guidance responsibility of the school library, however. Teachers and librarians, working as a team, act as reading counselors, as builders of bridges from the book that is good to one that is better. Just as one does not expect skilled violinists to be the product of a program that merely provides pupils with violins and a desire to play them, one does not expect mature, cultured readers to be the product of a mere provision of books and a taste for the act of reading. Claire Huchet Bishop has warned that "To raise generations who read exclusively for information and light amusement is to build a world of tomorrow where men, in the apt words of Ortega Y Gasset, will be 'new barbarians, men more and more learned and always more ignorant'" (1).

The elementary school library program must assist teachers in supplying expert, knowledgeable reading guidance, a reading guidance that leads to books of quality peculiarly suited to the needs of each individual child. Antoine de St. Exupéry has one of his characters, a man of middle age, lament his lost youth thus: "Nobody grasped you by the shoulder while there was still time. Now the clay of which you were shaped has dried and hardened and naught within you will ever awaken the sleeping musician, the poet, the astronomer that possibly inhabited you in the beginning." A reading guidance that is worth its keep will lead children to books that will

awaken them to the sleeping musicians, the poets, the astronomers that may inhabit them in the beginning.

Storytelling program valuable

Storytelling, as a valuable approach to children's books and reading and as a major component of the school library program is another aspect of services which receive greater emphasis at the elementary than at the secondary level: storytelling to introduce some new treasure in danger of being lost in the welter of mediocrity that is presented by the majority of each year's publications; storytelling to lead children into the magic world of myth and legend they would be incalculably poorer for not having known; storytelling to arouse the enthusiasms of the slow, the lazy—that boy or girl who would rather do almost anything else than read a book. Skilled librarians who administer elementary school media programs that meet the criteria for excellence are prepared to present story hour programs to introduce any sort of instructional unit, from community helpers to the civilization of ancient Greece, from comprehension of shape and size to atomic energy. These story hour programs, often involving the use of several media—films or filmstrips, recordings, etc., to lend variety—presented in an atmosphere of pure entertainment may be the "Open Sesame" to a world of new reading interest for the child and an avenue to basic comprehension of a new area of learning. A planned program of storytelling throughout the elementary grades, guided and at least partially presented by the professional staff of the school library, can serve also as an introduction to the major epics of the world's great literature, to Shakespeare, and to other giants of past and present, thus ensuring greater understanding when original written forms of these classics are encountered at secondary level. Over and over adults

are reminded that a crucial point in reading guidance lies in having certain books at hand at the psychological moment. How often storytelling is the best means of providing that psychological moment!

Qualifications of staff important

Throughout this discussion of evaluative criteria for elementary school library services, a unified program is stressed—a program involving both printed materials and all kinds of audiovisual learning resources available for use in the library—with one administrative organization as the ideal. For such a unified program operated from a media center where a full range of materials and services are available to teachers and students, the professional education of the head librarian—the media specialist—must indeed be a broad one, encompassing at least the two major disciplines of education and librarianship and resting upon a firm cultural foundation. General educational background of the librarian must include a knowledge of curriculum development and curriculum practice including innovative curricula and techniques. Instructional methods based on the latest knowledge of how children learn must be studied. Courses taken in psychology must provide sympathetic understanding of children and adolescents—a knowledge of how they grow and develop. Classroom observation and at least practice teaching are important parts of the preparation of the elementary school librarian in order to give her the teacher's viewpoint and teach her how to handle groups of varying sizes. It is essential, also, that the librarian have a thorough knowledge of librarianship, including all the current trends, and an attitude that welcomes change when change promotes the educational objectives of the school program. The librarian recognizes the value of dealing less with the manipulation of in-

structional materials and more with the ideas contained in those materials.

Above all, this media specialist must be a person of vision and strength of intellect with time to accomplish the objectives of the library. There is time because this head librarian is supported by a staff of other professionals, technicians and clerks in sufficient numbers to permit the library to assume its proper leadership role in quality education for all. Books and other materials, housed ever so attractively as they may be, are not enough. To serve children well the materials and the library must be in the care of creative librarians who enjoy children and who have imagination, understanding, and enthusiasm—the first, the last and the most important evaluative criterion of them all.

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Evaluative Criteria for Secondary School Libraries

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THE PILGRIM FATHERS realized that education was essential to their cultural survival. As a result of this concept, many of their early efforts were directed toward establishing schools in which their children were taught to read. They depended upon the Old World for their traditions, culture, and reading material which reflected and illuminated this culture. Therefore, the Bible was the main book used in the homes and schools. The Puritans,

especially, demanded that their children be taught to read and become knowledgeable in tenets of the Christian faith.

As early as 1647, the General Court in Massachusetts Bay Colony passed an act requiring all townships boasting a population of fifty families to maintain an elementary school. In spite of the fines imposed for failure to comply with the law, many townships refused to establish the schools or to raise the money for the teacher's salary.

It appears that even though respect for education lay deep in the hearts of the early settlers, most felt that the benefits of education should be limited to the privileged few—the rich, the socially acceptable. This country was well into the 19th century before there was established a system of publicly supported schools devoted to the education of all the children.

For many years the schools used the text books exclusively. The text book was found to be inadequate to provide sufficiently varied and stimulating learning experiences. Obviously, other books were needed to provide supplementary reading. Public libraries met this need until 1905 when the first secondary school library came into existence.

In 1960 the American Library Association published its standards for school libraries, and educators considered it unbelievable that the requirement was ten books per pupil in schools of 500. Five years later, due to educational innovations and media production, there were rapid developments in school libraries.

Problems in library service to secondary schools

There are, of course, many problems in providing library service to secondary school students. Many of these problems, according to Virginia McJenkins (3), stem from circumstances and attitudes following World

War II. There were the population explosion, the compulsory school attendance law, the untiring efforts to bring dropouts back into school, and the colossal emphasis on the need for education beyond high school. These notable problems and objectives place extra demands on the librarian and greatly expand the services demanded of the librarian. Nevertheless, librarians are of the opinion that the library standards today are far too conservative and hidebound for the libraries of 1970, less than two years from now.

Closely related to the problems of population and enrollment is the fantastic explosion of knowledge. As a result, a massive reformation of what is to be taught and learned in the nation's schools is the supreme challenge of her educators or directors of learning. The drive for excellence and quality in the teaching and the learning and an emphasis on making each individual independent in his learning are decisive factors in the changing educational picture.

Young people, says Olson (4), have more to learn than ever before because of the tremendous expansion in knowledge and they have greater opportunity to learn because of the increased interest in secondary school libraries. The grave necessity for maintaining the nation's leadership and preserving this way of life in a peaceful world has made the need to learn all the more urgent. As a result, education has taken on a new seriousness of purpose. Every possible aid to learning must be used to its fullest; and of all the aids available, reading remains the most significant.

Problems due to inadequacies

Despite the recent emphasis on school libraries, some serious inadequacies still exist. One major obstacle emphasized by McJenkins (3) in improving library service to secondary school students (and a most valid crit-

icism of schools) is the *lack* of time allowed for use of the school library. Hours before school, during the day, and after school could be utilized. Many high school students travel miles to and from school on buses, public transportation, or in automobiles. These students suffer especially from schedules that do not provide school time for library study. To add to this problem, the school library closes when school closes for the day. This practice is unfortunate even for those who live near enough to use the library after school. Consider the many assignments made by teachers. Despite the library study necessary in preparing these assignments, the library is closed at the end of the school day. Even if the student prefers to study at home, he finds numerous references that are not available for overnight checkout. Practically all high school libraries are closed in the evening, nights, weekends, holidays, and during the summer except on very special occasions. No matter how well trained the librarian or how well equipped the library, if students are limited to its use, the school's intention and its reading objectives suffer. Rather than curtailing the use of the library for even essential preparation, the school authorities should work out some plan whereby every pupil has some free time just to enjoy reading in his school library.

Another inadequacy is the specific problem of librarian-teacher relationship. This problem stems from the failure of the school principal to appoint a representative committee of teachers and other staff members to work with the librarian and other resource specialists serving the school. Such a committee should evaluate the library program and instructional resources. It may also suggest needed changes and improvements; assist in selecting materials and equipment; and assist in preparing the annual budget

for the library program, especially its instructional resources.

The teacher, principal, superintendent, and librarian

A successful teacher, says Hartz (1), must know what books in his field are owned by the library; he should be acquainted with the contents; he should know the specific chapters and pages that contain the material assigned or desired. The common practice of telling the class to, "Ask the librarian if she has something on this subject," is a reflection on the teacher responsible for making the assignment.

According to Srygley (5), the principal of a secondary school does not necessarily have to be an expert in technical library work. He does need, however, to understand why a library is important, what the characteristics of a good collection of library materials are, what the approximate cost of the materials is, and what personnel are required to make the library a real force in the lives of both teachers and students.

The kind of library found in a school is one measure of the nature and quality of its instructional program. Thus, the principal should encourage continuous evaluation of the library service as a means of improvement. The library must not continue to be the second-rate citizen it is now in many schools.

Hartz says that some school superintendents are still not convinced or they honestly do not know that libraries which are adequate in space, equipment, and book collection for its many readers and staff are as much an absolute necessity as are a principal's office, a cafeteria, or a gymnasium. To a great extent the secondary school library can be considered the pulse of the school's instructional program.

And now the librarian—the librarian should know many books, their titles, their style of writing, and

their level of difficulty. She should know individual pupils, their reading abilities, and their interests. She should encourage the expansion of interests. She should promote discrimination in selection and reading, and she should encourage the appreciation or importance of good writing habits. The librarian should follow up suggestions made by teachers and counselors of pupils' needs as evidenced in the library. She should provide abundant materials to meet varying abilities and interests and to encourage discrimination and appreciation in their use. And she should provide the opportunity and the atmosphere conducive to reading as well as the stimulation and encouragement for reading. Considering these requirements for a good librarian, let one make this plea that the job of librarian be a fulltime occupation—not just extra service from some willing teacher of English or of reading.

Developing character in library reading

Important as the library is as a supplement to the regular school assignments, it has an even more important function. Olson (4) reminds one that developing character and building sound human relations through reading are part of the growing determination of reading instruction. Through effective guidance, a teacher-librarian may help influence a pupil's sense of values by providing books which subtly develop such ideals as emotional stability, moral integrity, and the training of the will. Merely providing books is not enough, however. The ideas within the books must be transferred to the minds of young people. Through guidance and understanding, pupils may be helped to select books they need for particular problems.

Books and some newer media of communication

Teachers, parents, peers, and contemporary institutions, says the Na-

tional Study of Secondary School Evaluation (2), are the sources of many ideas and much information for students; but books have long been considered the primary means whereby ideas of enduring importance are recorded and communicated across the barriers of space and time, and librarians have traditionally accepted the responsibility of making books accessible and of encouraging their use. In recent years, however, there have been developed many new and wonderful devices which, while they have not and should not replace books, offer their own unique contribution to the same end. The newly developed audiovisual materials may well be considered a vital part of a good school library. The present-day trend in secondary schools is to set up more effective methods to teach reading and to make the school library a vital source of broader information. Below is a list of criteria that conceivably may help to develop greater understanding of the function of the library in the reading program.

Recommendations and criteria for library improvement

Ideally, a comprehensive research project initiated each year in each state is recommended to evaluate certain aspects of the library program as it relates to reading. Then, with cooperation and coordination among states, appropriate evaluation of effectiveness could be accomplished without undue strain on any one state or school system.

The following questions might serve as a basic criteria for one of determining the data that should be collected to relate the extent of outcomes desired from reading program activities. The questions may also prove valuable in forming hypotheses to be tested in experimental studies of reading program activities:

How adequate are the provisions

for the selection of instructional materials and equipment in terms of needs of the reading program?

2. How adequate are the periodicals and paperbacks supply to meet student needs, demands, interests, and requests in the reading classes and library study?

3. How much provision is made for circulating all types of materials for overnight use—encyclopedias and other reference books, current issues, and bound volumes of periodicals, filmstrips with handviews, and recordings for home listening?

4. How adequate has preparation been made for the school library to be open in the evenings, on Saturdays, during holidays, and at night?

5. How adequately do teachers communicate with the librarian in planning library services to meet curriculum reading needs?

6. How adequately does the school use NDEA funds for print and audiovisual materials?

7. How adequate is microfilming and microreading to meet school needs due to limited storage space of indexed periodicals?

8. How adequate are the individual library accommodations available for reading for a given percentage of the school enrollment?

Most assuredly, one agrees with Strygley (5) in her assertion that all culturally deprived youngsters are not necessarily the economically deprived as well. The library may be a center of cultural enrichment for all culturally deprived children. Through good school libraries, young people may discover this wonderful world in which they live—its people, its places, its problems. Too, they may also come to appreciate their own cultural heritage and gain some insight into their responsibility for upholding and improving it. They may find information, inspiration, and a sense of personal and social value which is so urgently

needed. They may grow in ability to seek and to find the truth.

Conclusion

With these observations, it is the sincere hope that administrators and teachers will become aware of the fact that the more opportunities carefully provided during the school day for students to use all types of resources needed to enrich and deepen classroom experiences, then the more discriminating are the tastes in reading that should prevail.

Interestingly enough, one may make all the recommendations or suggestions to the librarians for the reading area greatly valued, but without the cooperation of both the pupils and the teachers of her respective school, the deep vision of her principal, the acceptance of her superintendent, and the financial support of her school board, the library will fail to become the vital force for learning of which it is so capable.

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Folktales for Young Children

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FASCINATION with folktales is the happy lot of king and commoner, the withered sage, and the youngest child.

Marc Chagall has illustrated folktales in glowing colors; Serge Prokofiev used a folktale as the basis for his "Peter and the Wolf"; Sigmund Freud went to the folktales for support of his psychological theories while Claude Levi-Strauss used the same tales to illustrate his anthropological investigations.

And yet, these same stories capture young children just as surely in their web. Who has not sat with a prized child on his lap and told "Babouska," or "Little Red Riding Hood," or "The Fisherman and his Wife" and watched as the child's eyes began to look far away at another time and into another place?

Now, why should this be so? Why does a folktale have the power to stimulate the mind of child and sophisticated adult alike? The answer lies in the fact that a folktale can be translated at the depth appropriate for the beholder.

Children's stories, except for the very great ones, tell all there is to tell. There is no hidden magic, no room for fanciful interpretation. It is all there to begin with. Consider a story from a popular first grade reader:

The Little Sled*

Bob and Ben sat on a little sled.
The sled started to run fast.
It ran down the big hill.

Faster and faster went the sled.
Bob and Ben held onto it.
"Stop the sled!" said Bob.

The sled hit a bump.
Bob and Ben fell from the sled.

The little sled did not stop.
It ran on and on.
It ran into a red barn.

The barn bent the little sled.
And the sled dented the barn.
Bob and Ben got wet.

Contrast this story with the more familiar "The Gingerbread Boy," in

*From Glenn McCracken and Charles C. Walcutt. "The Little Sled," *Basic Reading*, Primer. J. B. Lippincott Co., Philadelphia, 1966, 22-23.

which a little man and a little woman want a child, and the woman bakes one of gingerbread. The gingerbread boy runs away and is eventually overtaken by a sly fox. The last lines of the story are as follows:

Soon the fox caught the gingerbread boy and began to eat him up.
The gingerbread boy said: "Oh, I'm half gone!"
And soon: "I'm three-quarters gone!"
and at last:
"I'm all gone!"
And that was the end of the gingerbread boy.

Now here is a tale that gives room for the imagination to play. Our young reader, first encountering the story, must experience a tumult of emotions. He, like that gingerbread boy, hears the beckoning call of the open road. Unlike the gingerbread boy, however, he does not answer the call. His steps to independence are slow and hesitant, not saucy and eager like those of the boy in the tale. But at the same time the fledgling reader savors the delicious freedom the gingerbread boy seizes for himself; he must experience, too, quite another emotion. For leaving one's family is hard—to simply run way from good and kind parents without a backward look suggests a callousness which is scarcely comprehensible.

And then there is the chase. The little old man and the little old woman, the barn full of threshers, the field full of mowers, the cow and the pig—all these, in apparently mindless reaction, join in pursuit. And at the end, that awful moment comes when the gingerbread boy—and each of us—is caught by the wily fox. "I'm quarter gone! . . . I'm half gone! . . . I'm three-quarters gone! . . . I'm all gone!" There is as much pathos in those lines as in any in the English language. Gone are the Mother and Father he never even knew; gone is the wild race down the road with the wind singing in his ears; gone is the dream of out-
"ancing the world . . . for as the

unknown storyteller so eloquently understates the conclusion of the matter, ". . . that was the end of the gingerbread boy."

It is tempting to think that "Gingerbread Boy" is an anomaly; certainly few of the other folktales have the same opportunity for dark, fertile interpretation.

But take "Goldilocks and the Three Bears." No doubt many have told this charming story countless times to small fry. The bears, on a clear summer day, leave the house for a walk through the woods while they wait for the porridge to cool. Goldilocks, who lives on the other side of the wood and who has been sent on an errand by her mother, passes by the house and looks in the window. When she sees no one is home, she lifts the latch and enters. After eating the porridge, Goldilocks tests out the living room chairs, sitting right through the bottom of Baby Bear's chair. And, wearied from her exertions, she climbs the stairs and, in the bedchamber of the three bears, locates a bed of the right size, covers herself, and lies waiting for sleep to come.

Goldilocks is a charming story, for there is a supernatural dreamlike quality in this account. Why does Goldilock's mother send the child through dark woods on an errand? It is part of the charm—a preordained pattern of behavior: she cannot help herself; like the mother of Little Red Riding Hood or the father in Hansel and Gretel, Goldilock's mother abandons her child, the object most precious to her, into danger. And Goldilocks is charmed, too. As in a trance, she steps into the dark and fearsome wood even though she must be aware that by going she leaves behind the warm protecting arms of her mother.

As children, everyone has felt that same abandonment; it may have been over a matter no more significant than our parents' approval of our staying

overnight at a friend's house, and yet it carried with it the germ of fear: "What if they are not here when I return?"

Why did Goldilocks enter the bear's cottage? Perhaps because she was charmed. The spell of a stranger's house with nobody there affected her just as it does any child. Has the reader ever been the trespasser in someone else's house? One might slide from room to room, open drawers, rub fingers over cloth and wood, rummage through closets, and spy into a hundred unknown places. One might break into the cupboard and eat someone's food, comb one's hair with his comb, sit in his chair, or lie in his bed, and imagine what it would be like to be that person for a time. But the trespasser must be caught; and Goldilocks is no exception. As the tale tells itself, she found a bed that was

... neither too high at the head, nor at the foot ... she covered herself up, and lay there till she fell fast asleep.

Logically, one would not fall asleep in a stranger's house. Waiting for his return, one's heart would pound in fear. But when under a spell, logic disappears. The deeper logic—that one must be found out for his misdeeds—prevails.

One has, then, in the Goldilocks tale an account of estrangement and enchantment, with a little girl acting out one's own fears and secret longings. The loss of parents and the question of their loyalty, the forbidden trespass in a stranger's house, the dreaded but coveted moment of discovery when misdeeds are bared—these are part of the underlying strata of meaning in this superficially simple tale.

Earlier, the writer suggested that the folktale was unique in its power to stimulate the mind of the child and the world-satiated adult alike. Now, why do children respond so vigorously to these old stories? The conventional answer is that the stimulation lies in the

tales' repetition of question and answer; in their satisfying clusters of three's; in the characterization of persons and animals of great strength, cleverness, poverty, and wealth; in the overcoming of great obstacles by superhuman heroes; in the talking animals and fairy gods.

But these conventional answers are not satisfactory. They seem to describe a feast by listing carbohydrates, vitamins, and minerals in the menu. Folktales have not lived from generation through generation or from century to century because of their repetition, or clusters of three's, or fairy godmothers. If that were all that they contained, they would long since have dwindled into obscurity.

In a physical world where continents and seas have been mainly charted, an inner territory, unknown and fascinating, continues to beckon. Folktales have flourished because they pry open the dark corners of minds; they tap the wells of fear and self-aggrandizement and lust. Through them, the reader has his chance to grapple with that self he keeps locked deep inside.

Hallucinogens and sensitivity training are two recent attempts to become better acquainted with that hidden territory. The lexicon tells us this—a "good trip" lights the happy recesses of the mind while a "bad trip" takes one into shores of the imagination one never dared acknowledge.

And the beguilingly simple folktale is another kind of trip inside one's self; for each person, it can be a doorway into self-discovery.

It is surprising but true that many who ought to know better continue to misinterpret what it is that young children want to read. Typical of this viewpoint is the notion that the first literary fare should be stories of the here and now, a world that is, according to many child authorities, still new

and strange and mysterious to the child.

Such a story is "The Little Sled," mentioned previously. While this story may be new and mysterious and strange to the young child, by comparison with most folktales it seems without life or passion.

But "The Little Sled" is no worse or better than any of the stories found in most first grade reading books. These stories are not immune to criticisms for a variety of causes: They are not real, say their critics, because the people in them are middle class families, with beautiful mothers and elegant fathers, cheery grandparents, and clever children; or they are not real because the language patterns used do not sound natural to the ear.

Such criticism does not get to the center of what is lacking in basal reader stories. A writer could fabricate stories with a class range from the most lowly slum dweller to the prince of commerce; he could have his illustrator paint in the faces of white, black, red, and yellow people in a ratio appropriate to the population; he could search the streets and houses of America for dialogue that catches the tune of spoken language now—but the stories still would not live.

They would not live because they would not have the heart and pulse of significant happenings in them. A sled bouncing into a barn, Betty losing her ball, or Nick and Pam selling lemonade on a hot day are the *here and now* stories, but they do not grip the mind of the young reader. What does he care if the sled runs clear through the barn or the lemonade gets too warm? Nothing! What he cares about is the storm of feeling in himself. He thinks about his father—is he a real father or an imposter? He thinks about his own manliness. How would he face a wicked monster who threatened his life? A swarm of questions

buzz in his brain, and delicate little stories from which all life blood has been robbed do not answer the questions.

It is curious, but true, that the folktale, with its antique language, its talk of kings and princes, its trolls and elves, is much closer to the real life of the child than most of the modern, realistic stories of father and mother, sister, and the family car. A writer's chances of fabricating a story that mirrors a child's life is slim indeed. What the city child knows, the suburban or rural child does not and vice versa. But with the folktale, all the pretenses of reality are stripped away, and what is revealed is raw, unadorned emotion—the stuff everyone uses for fuel in life. One recognizes himself because the story shows his face so plainly.

The question might be asked, "But what if folktales blow their minds? Is the folktale like LSD—with the chance of a bad trip always there? This writer does not think so. Earlier it was suggested that the power of the folktale is that it can be taken at the level appropriate for the beholder. This is the safety valve. If the child chooses to read the meanings, he may; but if he wants to stay in the security of repetition and talking animals and trilogies of happenings, that is his choice, too.

Francis Thompson, a nineteenth century English poet, wrote

Know you what it is to be a child? . . .
it is to be so little that the elves can reach
to whisper in your ear; it is to turn
pumpkins into coaches and mice into
horses, lowness into loftiness, and
nothing into everything,
for each child has its fairy godmother
in its soul.

That fairy godmother lives in each person; she whispers in each ear if one chooses to listen. She tells one of himself, the dark, gay, wild self hidden far inside. Will one heed her voice?

Storytelling

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A STORYTELLING FESTIVAL is a new program in the conference of the International Reading Association, but it is not a new activity in the history of literature. The term *festival* suggests not only occasions of joy and celebration but also a special time set aside for continuing attention to the exploration and honoring of an aspect of living, as the harvest time, or of culture, as the festivals of music, poetry, and storytelling.

Since stories have been told through all the centuries as men learned to speak together of their heroic exploits, their fears, and wonders in forms that became mythology, drama, poetry, song, genealogy, and history, there would have been found storytelling festivals in many settings and many times. Ruth Sawyer, in her book *The Way of the Storyteller* (Viking, 1962), describes the annual festival that once a year, in ancient Ireland, resulted in a truce between the warring clans while the bards and storytellers and pipers competed before the High King on the Hill of Tara. These must have been scenes of very high festival indeed, but there were also festive times of storytelling when a peddler spent the night in a small cottage and gathered around him the old and the young of the family at the end of the day to tell stories in the setting that the Irish writer Padraic Colum describes as an ideal background for storytelling—where the glare of the electric light was absent and only the light of a peat fire and the candles' glow threw shadows on the wall as the storyteller set the story moving in the surroundings that his listeners knew so well.

There must also have been an atmosphere of festival in the storytelling ex-

periences enjoyed by the children in the schools in Wilmington, Delaware, when Ruth Tooze told stories with such impact that she stimulated the formation of the Storytellers' Club in one of the schools participating in the curriculum-development project described by Muriel Crosby in her book *An Adventure in Human Relations* (Follett, 1965).

The necessary ingredients for a storytelling festival are not only special places or events; the ingredients are an experience to be shared and a storyteller who can give to each sharing the dimensions of festival.

Within the general framework of professional interests in this conference, the contributions of storytelling to children's experience with language and literature have considerable significance. When an adult tells (not reads) a story, not telling about it but giving it to children in the literary style in which the child finds pleasure, the scene is set for meaningful listening experiences on the part of the listeners.

The *pleasure* of listening to stories told is the most obvious response to be observed. The quality of this pleasure is worthy of some examination. An important characteristic of the pleasure of all literature is an active, participating, intellectual involvement. It is the pleasure that Edward W. Rosenheim, Jr., writing in a paper entitled "Children's Reading and Adult Values" published in *A Critical Approach to Children's Literature* (University of Chicago Press, 1966), described as humanistic satisfaction, "sustained, active encounter, . . . largely determined by the degree of affirmative intellectual energy the reader is willing to invest."

A good story by the very nature of the communication established between teller and individual listener demands an intellectual encounter with a set of characters; a locus of action; a series of events that must be anticipated, rec-

ognized, and variously resolved; and a language that is not that of common everyday speech but of literary style. Words that are unfamiliar become understandable as one learns to listen to them in context; symbols and figurative language are heard and interpreted by the storyteller's tone, expression, and evident emotional reaction.

Such encounters with language and literature may be characteristic of a story-listening experience if, and only if, the story told is a worthy one, selected because it provides this breadth of pleasure.

One can expect and observe growth in listening skills as experience in story-listening accumulates. These responses may be to new words and phrases as children "taste" them silently with their lips, smile with quiet pleasure, or react with spontaneous laughter and bodily movement. One sees evidence of growth in the repetition of words, phrases, characters, and situations used in creative writing, dramatics, indirectly in speech, and indirectly in vocabulary growth and comprehension.

Growth in the ability to sense implied meanings, and especially to recognize and anticipate events, is especially obvious in children's manifested excitement and pleasure as they follow plot development. The strong plots characteristic of the majority of folktales provide for early and continuous experience with narrative form.

In order to provide opportunities for these kinds of growth, however, certain conditions are essential in planning for such story-listening experiences.

The story itself must be worthwhile—the direct narrative form and the beauty and flavor of language that will provide a rich listening experience. The selection of stories to tell—and this point is equally true for the stories to be read aloud to a group—is the important part of the process of

storytelling and requires the most time and study.

The storytelling experiences that are being discussed here are not dramatic productions. A pleasant voice and excellent enunciation are assets, but most important is the story itself; the teller is the medium for the production. Anyone who wants to tell a story and has a good story well prepared can tell it.

Storytelling can provide an important mode of access to the great *reservoir* or *cauldron*, as it has been variously labeled, of traditional literature—folktales, mythology, legends, hero tales, romances, and fables. There is a great storehouse of this literature rich in interest because the situations present fundamental life experiences expressed in forms that have common elements the world over, and, therefore, appeal to all ages. This literature tends to be represented in language and literature in a high frequency of allusion and vocabulary with poetic, artistic, and musical interpretation. It is presented in popular film, comic book, street games, chants—every variety of media. The pity is that only a small segment of the sources are ever read or heard by the majority of children growing up today. This is the literature that adults have a special responsibility to be better acquainted with, themselves, and to share in telling and reading aloud. Fortunately, society is blessed with a multitude of selections from traditional literature in fine retellings for children.

In spite of the fact that the stories drawn from traditional literature, and especially those that are folktales, have come down from many different periods of history and different levels of literary and social development, they have an abiding interest for almost all children and seem less culture-bound than much literature of known authorship. The answer to this phenomenon is usually to be found in the charac-

ter of the folktales: in their straightforward narrative; strong action; high imagination; recognizable characters who are types, not individuals; reliance upon fundamental moral values of justice, truth, equality, and love. They tend to deal with the basic struggles of man's existence and with the emotions common to everyman's lot, from the universal struggle of good with evil to the discomfiture of the husband who thought he could mind the house better than his wife did.

Although the reference throughout this article has been to the "telling" of stories, this is not to say that the same objectives and standards for materials are not present in selecting material to read aloud or to use in other ways with children; it is to say that there is a different environment for the communication of a story told as compared to one shared in any other fashion. Only in telling is the storyteller able to look directly at the group and establish a personal communication with each listener; to gauge his volume, pace, and level of emotional intensity to the responses he sees in the faces of his audience; and to interpret a word or event that is not understood without interrupting the flow of the story.

There is suggested here some additional values of a story-listening experience. One of these is recognized in a group situation where the story creates a common experience, a sharing of emotion, or a common background where before none had existed.

A second value is the characteristic of audience listening—an experience not always available to children attending the typical large school of today. In good schools the participation in discussion group activity is a common experience but the listening to a story told through to the end without interruption is to experience the *whole* of a piece of literature, rather than the fragments of it.

One elementary school primary

grade faculty recognized the need of their pupils for audience-listening experience and planned a weekly story period with the librarian in which all the groups assembled in the library. There was an opportunity for heightened interest because of the large group of children and teacher sharing the stories; and the children, who had ample opportunity to participate in group discussion in their own classrooms, had an extension to their listening experience.

To provide this experience poses some requirements for the storyteller in preparation and presentation. Thorough study of a story and continuous rereading helps the storyteller to assimilate style and spirit until it becomes his own expression. Knowing it to this depth makes it possible to recreate the scene and the action. It is then unnecessary that either teller or listener rely upon gimmicks or figures of felt or programing devices which more often diffuse attention than intensify it.

Types of materials from children's literature which contribute to the development of appreciation of literature follow:

In the area of developing appreciation for style patterns, rhythms, new and unusual words, are the following:

1. Beginning phrases of certain folktales, e.g.,

"Once on a time and twice on a time and as many times as you like to count." *The Stars in the Sky*, Joseph Jacobs, *English Fairy Tales*.

"Once there was and was not" characteristic opening phrase of Majorcan folktales in a collection "Once There Was and Was Not."

"In the far away of long ago, when the world was rare, and happenin's quarer a thousand times than they are today," from *The Wee Red Men*, in Seumas MacManus, *The Donegal Wonder Book*.

2. Repeated phrases in stories, such as

"All the day and all the day he sailed and he sailed and he sailed up the big river. And the Great Red Sun dropped behind the trees. . . . He showed King Leo the fruit that looked like an APPLEORANGEPEARPLUMBANANA and smelled like a BANANAPLUMPEARORANGEAPPLE," both from "*The Bojabi Tree* by Edith Rickert.

"There was a snipping of scissors and a snapping of thread" from *The Tailor of Gloucester* by Beatrix Potter.

"I'm not an animal, I'm an animal" from *The Funny Thing*, by Wanda Gag.

"Sadysalleratus" by Richard Chase, in *Grandfather Tales*.

3. Anticipation of events, as in, "The Little Rooster and the Turkish Sultan," folktale in *The Good Master*, by Kate Seredy.

"The Seller of Dreams," in Henry Boston's *Fairy Tales*.

"Epaminondas" in Bryant's, *Stories to Tell*.

4. For more mature listeners, the experience of hearing an imaginative continuation to the familiar, as in *Cinders* by Katherine Gibson, in which one of Cinderella's coachmen is not restored to being a rat when the twelve o'clock sounded. The beginning is quite mysterious and only as the story moves on do the children become aware that this occurrence is the subject.

5. An example of style of rhythmic beauty is the beginning of Wheeler's "Little Humpbacked Horse" in *Russian Wonder Tales*.

"Across the wide sea-ocean, on the further side of high mountains, beyond thick forests, in a village that faced the sky there once lived an old peasant."

Storytelling provides for particular regard to individual differences, to the needs of children with special handicaps—physical and emotional. Storytelling for blind children and those in sight-saving classes is a particularly rich cue for extending understanding,

but the limitations of first-hand experience of the listeners must be considered in careful choices of materials used.

Equally specialized needs are found among children whose cultural horizons are very low, who come from homes where English is not spoken, and who have a poverty of vocabulary and background in the literature in English. Careful selection of stories can be helpful in bridging this gap and should be one of the most effective contributions to the "head starts."

Three books about storytelling are both useful and stimulating: They are *The Way of the Storyteller* by Ruth Sawyer, published by Viking and available in paperback; *The Art of the Storyteller*, by Marie Shedlock published by Dover; and *Storytelling*, by Ruth Tooze, published by Prentice-Hall.

The best lists of stories to tell are published in frequently-revised paperback editions by three large public libraries: New York Public Library, Carnegie Library of Pittsburgh, and Enoch Pratt Free Library of Baltimore. Useful articles on storytelling, including lists of good stories, are in the children's encyclopedias: *World Book*, *Comptons*, *The American Educator Encyclopedia*.

The serious writing about storytelling is meager in quantity. Much of it is either appreciative or concerned with practice. The student of storytelling draws upon the scholarly research of other disciplines: literature, languages, education, and anthropology.

One doctoral dissertation was written in recent years on the role of storytelling in the United States (Rose L. Abernathy, Northwestern University). There are many unanswered questions about the contributions of storytelling and children's responses to it. The characteristics of the listening experience itself, the effect of attitude and past emotional experiences, the nature

of responses to various kinds of stories, and the nature of creative responses to stories told are broad areas of needed research.

The Theme Approach for Reading Literature Critically

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IN THE WINTER ISSUE of the Delta Kappa Gamma Bulletin, Frances Ross Hicks and Jean V. Marani expressed two widely separated ideas which might serve to introduce the importance of using a theme approach around which the literature program might be organized, thus providing teachers with opportunities to encourage critical reading-thinking skills.

The first of these ideas was expressed by Jean V. Marani (6). "Sweeping into every corner of America are the forces of change. Nothing is immune; no one can hide in the comforting folds of familiar ways. As Gabriel noted from his heavenly perch in Marc Connelly's play, *Green Pastures*: 'everything nailed down is coming loose.'"

From the same magazine comes the second idea by Frances Ross Hicks (4) when she defined the task of the educator "... to involve students in the business of thinking, of reasoning, of making ethical judgments, of using forethought, of discriminating between 'old sayings' and those traditions which represent the distilled wisdom of the ages, with the further task of helping students internalize these tested values and make them their own."

To place this topic in proper perspective an additional idea needs to be considered—the problem of education as it is caught between its aim, as expressed by Hicks, and the era of

Margaret Mead (6) has phrased this problem best by saying: "We are now at the point where we must educate people in what nobody knew yesterday, and prepare in our schools for what no one knows yet but what some people must know tomorrow."

One has, then, the element of change and the momentous task of developing critical thinkers for a world unknown. With these three quotations serving as a backdrop for considering the literature program for the elementary children of America, what is a satisfactory organizational plan and what type of guidance in critical thinking is desirable?

Organizing the literature program

Basic to a sequential plan for literary experiences of elementary school children are books of excellence. Siddie Joe Johnson (5), in the initial article in the literature section of *The Reading Teacher*, wrote: "... all we have to do, is to remember the poet Walter de la Mare's words, as though they were graven on our hearts as well as on the Regina Medal of the Catholic Library Association, that 'only the rarest kind of best in anything can be good enough for the young.'"

A great deal of guidance is given to teachers and curriculum specialists in ways of finding books of excellence. Professional journals, like *The Reading Teacher* and *Elementary English*, regularly offer sections on literature. Many newspapers feature book reviews of children's books. Departments of education offer courses on children's literature and adolescence literature. (Jean Betzner used to say every teacher should have a refresher course in children's literature every five years!) *The Horn Book* is a magazine devoted exclusively to news and reviews of children's books. There is, therefore, help in abundance in making wise choices of children's books at all age levels.

In a recent study Paul Anderson polled 296 teachers in widely separated schools, which represented 24 states, asking them to list the books read aloud to their classes. The following ten books were mentioned most frequently:

Title	Author	Publisher
Charlotte's Web	E. B. White	Harper
Call It Courage	Armstrong Sperry	Macmillan
The Hundred Dresses	Eleanor Estes	Harcourt, Brace
The "Little House" Books	Laura I. Wilder	Harper Brothers
Island of the Blue Dolphins	Scott O' Dell	Houghton
Twenty-One Balloons	William DuBois	Viking
And Now Miguel	Joseph Krungold	Crowell
Mrs. Piggie-Wiggle	Betty McDonald	Lippincott
The Shadow of a Bull	Wojciechowska	Atheneum
Brightly of the Grand Canyon	Margaret Henry	Rand

Of course, in many schools children are hearing good books. It does not always follow, however, that curriculums are organized for or that teachers give guidance in development and improvement of reading-thinking skills when the children themselves read.

Should the books from the children's literature field be organized? If so, how? Can books of literary value be organized in the total school curriculum? By types? By relation to subject matter? By themes? Is not the latter one of the most attractive ways? If one organizes according to types, the basis of organization is more or less mechanical. If one organizes according to subject matter, one may encourage only literal comprehension. If one organizes according to theme, one provides the teacher with opportunities for guiding her pupils toward significant ideas and the evaluation of them.

What themes might be considered? One teacher chose to organize her curriculum around the following themes: Understanding Ourselves and Others, Accepting Challenge, The Therapy of Laughter and Beauty, and Security of Knowledge. Understanding of Self was considered from three points of view: growing up, being courageous, and achieving. During the time that "achieving" was in focus, the teacher aged the reading of such books

as *Nobody Listens to Andrew, Let's Be Enemies, Wait for William, Too Little Rosa, Little Pear, Island of the Blue Dolphins*, and *King of the Wind*. One part of the "understanding others" theme dealt with "understanding people in different countries." When

this theme was dominant, consideration was given to *What Time is it, Jeanne Marie? Grow Boy, Gilberto and the Wind, The Story about Ping, Madeline's Rescue, The Apple and the Arrow, Burma Boy, and Secret of the Andes*.

In using the theme of children's books for organizational purposes, as in any other plan, books of many reading levels are needed in order for the teacher to meet reading needs of various members of the class. H. Alan Robinson (8) has said, "It is possible for students to learn something of the art of literature without requiring all of them to read the same book. Students have various needs at different stages of development and the literature program should be reflective of such needs."

In the lists enumerated above, the theme ties together the reading experiences of the pupils, while the reading levels offered by the various books take care of individual differences in reading achievement. Although one child may read *What Time is it, Jeanne Marie?*, another in the same class may read *Secret of the Andes*. Yet, in organizing by and focusing attention on a theme, all pupils in the class may share ideas, think critically about them, read orally to share or to prove a point (in real audience situations one

of the most *desirable* uses of oral reading), and discuss ways of applying ideas gained from their reading.

Stimulating critical thinking

Although teachers recognize the comprehensiveness of the reading process as one which includes recognition, comprehension, interpretation, evaluation, and application of ideas, they often become preoccupied with the problems of mere word recognition and literal comprehension. Failure in raising the level of comprehension, encouraging interpretation, and proceeding to the *heart* of the reading process—that is, evaluating and applying ideas—is to *begin* the task of teaching pupils to read but not to *complete* it.

While it is necessary to deal with detailed ways and means of improving instruction in the areas of word recognition and certain types of comprehension from the point of view of many types of learners, instruction which fosters interpreting ideas, evaluating them, and applying them is the ultimate goal. Inherent in that goal is the basic aim of all instruction—that of developing character traits which stimulate desirable thinking and action for citizens in a changing society.

Virginia Reid has said, "Ethical values develop through books when the reader identifies with another child faced with like situations and evaluates his solutions."

In discussing the topic "Books That Reveal Ethical Values," Jean Bishop (1), children's librarian of the public library at Richmond, mentions, "... Lloyd Alexander who has written a chronicle in three books, *The Book of Three*, *The Black Cauldron* (Holt, 1965), and *The Castle of Llyr*, which have romance, humor, adventure, magic spells. Might conflicts between forces of good and evil in these books force the reader to evaluate the causes of each cast of characters. He is to love the good and hate the

evil. He identifies with the side of good. As an adult citizen, part of his responsibility will be to evaluate issues and align himself on the side which seems nearest right."

During the past decade, critical reading has been the subject of numerous articles and speeches. William Durr (2) in *Reading-Instruction-Dimensions and Issues* reprints an article from *The Reading Teacher*, May 1964, by Robert H. Ennis, in which he delineates nine major aspects of critical thinking. In the same volume, Helen W. Painter writes, "Children of primary grades will be able to think critically about those situations which are a part of their own experiences or can be related to them." Later she adds, "Many children will not do critical reading or thinking unless the teacher directs or challenges them. Surely critical reading by children calls for teachers who are critical thinkers themselves." Leo Fay (3) has said, "Actually children at ages well before those at which they enter school are able to make valid judgments in relation to their experiences and their maturity levels." For the past several years Sara Lundsteen and Charlotte Huck have been involved in reading research studies determining critical ability and ways of improving critical thinking in elementary school pupils. Russell Stauffer, former editor of *The Reading Teacher*, frequently writes and speaks on the cognitive processes in relation to critical reading. The article by Helen Huus, "Critical and Creative Reading" in *Reading and Inquiry*, is often quoted.

A highly significant research study, covering a period of three years and involving some six hundred students in the elementary grades, was completed at Ohio State University. The aim of the research was to test the thesis: Can elementary school children be trained to read and think critically?

The answer was an unequivocal "Yes."

Critical reading skills are defined differently by various reading experts. Nila Banton Smith (7) likes to think of critical reading as including literal comprehension and interpretation. She defines interpretive skills as "... supplying or anticipating meanings not stated directly in the text, such as drawing inferences; making generalizations; reasoning cause and effect; speculating on what happened between events; anticipating what will happen next; detecting the significance of a statement, passage, or selection; making comparisons; identifying the purpose of the writer and the motives of the characters; associating personal experiences with reading content; forming sensory images; experiencing emotional reactions." However, Smith says *critical reading* goes further "... in that the reader evaluates, that is, passes judgment on the quality, the value, the accuracy, and the truthfulness of what is read."

The need, then, is to gather together books of excellence, cluster them about worthwhile themes, and so guide pupil-readers that they will develop into mature, critical thinkers. The guidance must go further. For pupils must be lead to *apply* the results of their evaluation of ideas to *their own lives*.

From a practical point of view, one way to encourage pupils to think critically about a theme, while reading from various books related to that theme, is for the teacher to follow a procedure such as the following: *First Step—Readiness Introduction*: setting the stage for the theme, its universality, its meaning to readers (of this particular age group), *Second Step—Browsing Period*: having the readers scan chapter headings, read a little here and there, and "read" pictures (a pre-reading activity), *Third Step—Prediscussion Period*: Whom do you use your book is about? Is it real or unconfucil? Where do the characters

live? When did they live? What do you think is going to happen in your book? Why do you think so? Have any of these things ever happened to you? How do you think your story ends? Why? *Fourth Step—The Reading Period*: guided by questions such as Who are the people in the story? What happens first? What else happens? How do the characters feel? Act? Would you have felt that way? Or acted the same way? Could the characters have reacted differently? Should they? If so, why? *Fifth Step—Post-Discussion Period*: Were you right about what you thought was going to happen? Did your characters act the way you thought they would? Why did they act that way? How did they feel? Have you ever felt that way? What idea from your story is worth remembering? Why? Can you think of a time you might use this idea or need to remember it? Do you feel differently about some people and some places as a result of reading your story? How? Why? Why do you think the author wrote the book? Did he succeed in his purpose? How did he tell you about the characters? What type of literature is it? Are the illustrations appropriate? Why? Do you know anything about the author? The illustrator?

By using questions, teachers can encourage critical thinking. For example, recently in demonstrating how to read a picture book to a young group of children, Charlotte Huck, using *Where the Wild Things Are*, asked these among other questions: Where were the wild things? What kind of story is it? Could it really happen? Why? What kind of boy was Max? What did Max do to the wild beast? Was Max happy? Was he the same boy after his dream? What did you notice about the colors in the book? Why did the artist use these colors? Do you know any other make-believe stories?

Summary

The theme approach provides the teacher with an excellent means of organizing literature into units each of which serves to focus attention on concepts related to pupil's lives. Using themes as an organizational pattern also offers the teacher an opportunity for guiding critical thinking through questions and discussions. Thus, he is able to lead pupils not only in interpretation but also in evaluation and application of ideas gained from reading.

Boys and girls may internalize and personalize to the point at which they actually become *different people*, as a result of having had contact with great themes in significant children's books and because of *exciting* reading experiences.

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Needed: A Society for the Prevention of Cruelty to Children's Literature

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Scholastic Magazines

THERE IS NO LONGER A NEED TO MAKE A plea for the use of paperbacks

in the classroom. They have become standard equipment for most teachers; rather, the need seems to be to make a strong plea for the proper use of paperback books in the classroom, particularly for the paperback book that is considered as literature. (There are a great many books written for children. Not all of them are children's literature.) Many educators are concerned about the way children's literature is being used as curriculum content. It is one thing to analyze an ordinary story with children to discover sentence structure and unfamiliar words and phrases. It is quite another thing to dissect E. B. White's beautiful *Charlotte's Web* into seven parts and dole it out each day as a grammar lesson. This latter one is a criminal act. If the book is a good one and loved by children, that's the very one chosen for the autopsy.

All over the country children become caught up in an adventure only to be handed a list of questions to answer while their heads are still filled with derring-do, not facts. They still savor the taste of exotic lands and strange customs when they are required to write the ubiquitous book report. Children's literature has become a means to an end, but it is the wrong end. One must stop teaching literature to young children and let them read it. Educators have become so engrossed in methodology that the reason for teaching reading in the first place has been forgotten. Involvement in phonetic analysis, structural analysis, contextual clues, and the mechanics of reading has caused educators to lose sight of the ultimate goal, which is enabling the child to experience the sheer joy of reading.

A fine story is an entity in itself. It should be met and experienced as an entity, not in small pieces for didactic purposes. One must respect the integrity of the book and recognize and appreciate the integrity of the child. While busily trying to equip the child

for the "school world" by teaching him the correct language patterns to follow, by training him in the cognitive skills, and by giving him facts and problems that will enlarge his repertory of functional skills, one sometimes forgets that the child needs the opportunity to respond to an experience with all of his being. Such an experience is the reading of children's literature. The child who "sits no place" in our society may find a place through a book.

Educators are anxious, and rightly so, that the child should develop a satisfactory self-image. They want him to feel competent and valuable and to realize all of his potential but often deny him one of the best means of relating to the world, of developing empathy toward others, and of entering into situations that are denied him ordinarily. For many children, the ownership of a book is a vital element in promoting self-esteem. Not too long ago books were expensive and very precious commodities. Just because they are no longer expensive does not make them any less precious. Paperback books make it possible for the child to own more than one book and to own fine literature. He can take a paperback book home to read to others, to share his feelings, and to cherish what has given him a sense of pleasure and accomplishment. He needs to be able to *cherish* every bit as much as he needs to be able to *add*.

This is not to say that books cannot be discussed with a child after he has read them. Indeed, it is most important that they are discussed with an understanding adult since the discussion is a means to extend his appreciations, explore his attitudes, and enable him to approach the next book with more confidence and awareness of what makes literature different from other writing. Some schools have asked parents to come in for an hour or so during the week just to sit in the corner of the classroom and talk about

a book with a child. The child has completed the book and wants to read out loud to someone, to share the delight he has found in a story. The parents seem to enjoy this exchange, and the children request a "reading time" so often that there has to be a waiting list. Another useful way of extending the child's appreciation of a book he has completed is found in the individualized reading program with its one-to-one teacher-pupil conference. At that time the teacher and the child talk about the characters in the book and what makes them come alive for the child. They trace the plot and think about what might have happened if certain characters were changed or if the setting had been different or if the plot had taken another turn. The child is led to notice variations in styles of writing, not necessarily to identify them precisely but to recognize types. He shares the amusing, exciting, and sad parts of the book; remembers the words that gave each part its special flavor; and talks about his own feelings about the book and the characters in it. But he has had the opportunity to read the book without interference first. One would never consider cutting up a fine painting, presenting pieces of it to the child for his examination, and testing him on the brushstrokes, subject, and color. One wants him to respond to the painting as a totality, as a work of art. Even though a piece of literature may appear in paperback form and may be inexpensive and disposable, it is still a work of art and deserves the same consideration given a fine creation.

The child may want to introduce his book to other children in some manner when he has finished it; but, then again, *he may not*. He may prefer to keep the experience of his reading a very personal affair. And he has a right to this desire. In fact, there is no reason why he should have to discuss the book at all if he does not want

to. Some books are not for discussing. Some books belong in a small, very private place in a child's heart; and one has no right to violate that place.

Literature can bring to the child a sense of his own relatedness to the rest of the world. A youngster who is plagued by fears and difficulties finds in *Mafatu*, the boy who was afraid in *Call It Courage*, someone who also lacked courage and yet found it through a fierce act of will. The child who is bewildered and feels unloved finds a friend in *Sara Crewe*. The love a child has for one particular possession finds an echo in *Blue Willow*. And the child with few possessions understands *The Hundred Dresses*. The problems of spankings and getting lost are found in the endearing *The Story of Ping*, and problems of identity are posed in the *Little Red Lighthouse*. Many have known a child who was shattered by the assassination of Siegfried and wonder if the child remembers that outpouring of shock and grief. Whether in paperback or between hard covers, literature belongs in the child's hands intact. No educational scalpel should touch it.

There are, however, many books that can be used to enrich the disciplines of the curriculum. These paperbacks enhance the learning of history, science, and the social sciences. Indeed, they are essential to the full understanding of the disciplines, and they provide an extension of learning that is vital. The textbook cannot treat all topics in detail, nor can it provide for all reading levels. The paperbacks offer different opinions, different attitudes and styles, and different reading levels. The teacher can, for very little money, collect paperbacks that pertain to many different areas of the curriculum because there is such a wide variety of titles from which to choose. These books provide information for the child who may have difficulty with the text; they

provide challenge and extension of knowledge for the child who finds the text too simple, and they provide a deeper understanding of the subject for all children.

The textbook presents the issues and the facts in a condensed manner and in one style of writing. The child who is studying the American Revolution is made aware of the outline of the revolution, but he then gives it substance by sailing with *John Paul Jones*, by crossing the enemy lines with the *Spies of the Revolution*, and by listening to the oncoming drums with the brave farmers in *Day of Glory*. The drama of history becomes personal when the child is involved in the lives and adventures of the actors. Children read about the explorers in the textbook; but when they enter into *No Other White Man*, they listen for the snap of the twig that tells Lewis and Clark that Indians are near. They will learn the dates of the Civil War from the textbook, but they will smell and hear and taste the war in *The Red Badge of Courage*. Each book has its place and each has its value.

Some teachers are adept at guiding the child to an understanding of the scientific method through experiments and observation. These same teachers enrich these necessary activities by having the children translate their own experiences through the scientific exploration of others. The child goes along on *The Search for a Living Fossil*, sharing in the moments of despair and triumph that came to those men and women who almost missed the coelacanth. They understand the persistence, devotion, and knowledge required of the men who found Pluto in *The Search for Planet X*; and they understand a bit more about the relationship between what they are doing in the classroom and what is done outside by scientists. They also share their learnings with others and thus

understand the value of reading and study, the *point* of all that training. And their faith in themselves and in their capacity for making changes in their world increases. So please do not disturb the boy reading off in the corner. He is going where adults can never go again, for they are not children.

Practice dissection on the periodical

The classroom periodical, on the other hand, is specifically designed as a teaching tool. Here vivisection is encouraged and is absolutely necessary. This matter is not literature, although writers often become so dedicated to some aspect of the changing spectrum of events that the articles they produce must be considered literary essays rather than just news stories. The uses of the periodical are manifold, a trait which is one of its strengths. For the child who has had little success in school, it offers a new avenue of exploration and possible achievement. Many boys and girls do not have confidence in their capabilities because they have not been able to define an area of competence, and no teacher has tried to find one for them. Their sense of frustration and their anger are compounded by constant confrontation of material that has little relevance to their lives. Their feelings of hopelessness and helplessness are increased each day until they reject the impossible situation altogether, and the chance for rectifying matters is lost, sometimes for good. Once the pattern of failure has been established, it takes a great effort to try to master the same materials again. People do not yet fully realize the effect on a child of repeated exposure to failure-loaded textbooks and workbooks. He may come to look upon them as insurmountable obstacles which will cause him embarrassment and loss of self-esteem. More viable methods and materials are required.

The classroom periodical is one device that can help. Some stories are long; others are just short news items, and still others are picture stories. For the nonreader, the pictures present a challenge of interpretation and verbalization. He may be reluctant to talk about them immediately, but a skillful, thoughtful teacher can make him feel that his contributions, however simple or short, have value to the class. If he fails to respond the first or second time, there are always new pictures to be examined each week. The novelty of the format and the variety of topics serve as motivation for even the most limited readers. Many teachers use the periodicals in their remedial work because of this difference from the usual hardcover book and workbook and also because the children are not conditioned to respond to the material in a negative manner.

The greater number of the stories in the periodicals concern the news of the day, and the child becomes receptive to events outside his immediate environment. The articles are written in his language and directed toward his interests. Often these stories parallel the news he sees and hears through television, and this coincidence serves to point up the relevance of the content. Very often he is able to contribute to conversations at home because of this similarity of topics, and this act increases his self-esteem as well.

So much attention is focused on the child who has difficulty with the requirements of the school that one tends to forget the needs of the child who must be challenged if he is not to be bored to distraction, and everyone knows what form the distraction may take. Sometimes, however, these children do not bother anyone. They should bother the teachers. The stimulus of fresh ideas and important and complicated problems and the exposure to novel customs and concepts are critical elements in the full develop-

ment of a child's potential. The variety of topics covered in a periodical offers that child an array of possible new areas of study. In one issue, he is apt to come across archaeology, economics, art, botany, biology, and poetry, as well as the important news of the day. He needs to explore to find his own metier.

The use of the periodical has taken on another dimension with the increased interest in developing cognitive skills with young children. No longer can one relegate the classroom periodical to the "current events time," that last half-hour on Friday afternoon when one wants something to divert the children's attention from iayhem. The periodical is a very good tool for testing behavioral objectives. There is so much information available to the teacher that it is almost impossible to cover all that seems essential in the curriculum. The teacher must face the difficult task of determining what is essential and structuring that content so that the children not only receive and discover facts that are relevant to their needs but also receive the necessary training in exercising the cognitive skills appropriate to their conceptual level. The teacher sets certain behavioral objectives that will help measure the child's competence in those skills. The periodical is an invaluable aid in that measurement.

News stories are written so that facts are easily classified, categorized, and labeled—the most elementary of the cognitive skills. News stories relate to a wide scene so the skills of extrapolating and making inferences can be exercised in a meaningful manner. The teacher can check easily to determine how effectively the skill of seeing relationships has been taught. The periodical can be used as a laboratory for both the exercise of cognitive skills and for the evaluation of the child's performance. Articles found in a news periodical are ideal for this exer-

cise because the content is designed for the child's interests; the writing is clear and concise; and the styles of writing vary enough to accommodate the use of several skills in one reading. The articles are short, for the most part, and cover one major generalization or problem. Children read the facts, form their own generalizations independently of the conclusions of the articles, and then criticize their findings. No matter what cognitive skill is being taught or tested there is always at least one article that conforms to the teacher's requirements.

Teachers oriented toward the "product" approach can use the articles to measure simple recall or more complex comprehension. Those who are more receptive to the "process" approach can use the articles to determine to what extent the child has mastered the skills of translation, interpretation, and extrapolation. As the teacher develops these cognitive skills, the child begins to exercise his critical faculties and begins to synthesize and analyze freely. He may even reach a point where he can take the facts from one article, relate them to those in another article, and come up with some creative thinking as well. Because some news requires coverage in more than one issue, the child may begin to see continuity in events and to relate his own experiences and thoughts to the material in an original manner. The static quality of the textbook cannot provide that opportunity.

In addition to the cognitive skills, the periodical serves to reinforce and check reading and study skills as well. Even the very youngest children can begin to discriminate between fact and opinion and to make simple comparisons among events. New and colorful words from around the world can be attacked through phonetic and structural analysis. Children delight in mastering these words, and the news is full of them. Children are compelled

to try out their decoding abilities on compound words, prefixes, and suffixes; and they can frequently bring the rules of syllabication to bear on long place names and proper names.

Many teachers use the periodicals for skimming lessons, the children having the opportunity to go through the many short articles quickly to find one particularly interesting. The child then reads that article in detail, summarizes it, and presents it to the rest of the class. The children can check their own ability to outline, to make notes, to read maps, to recognize paragraphs, and to identify certain simple styles of writing. All of this activity increases the child's sense of his own competence and defines his relatedness to his environment, both valuable objectives.

Summary

The uses of the classroom periodical and the paperback book overlap to a great degree. As the child perfects his cognitive, reading, and study skills, he is more capable of absorbing new concepts and assimilating them into his own "schema" or style of learning. He feels competent to attack a book he might ordinarily think too difficult because he has experienced success in other areas of the curriculum. He begins to trust his own ability to explore and to discover new worlds of experience. He is no longer afraid to try a "fat" book with no pictures because he knows that he can work his way through such a book without too much trouble. And in exploring literature through the paperback book, he is handling a familiar, nonthreatening object that he can take along with him wherever he goes and enable him to enter into strange, exciting, and beautiful realms of imagination that will strike a responsive chord in his own imagination. His life is enriched, and his self-esteem is increased. And these are the reasons one teaches.

Humor in Children's Literature

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RECENTLY, when a sixth grader was brought to the office for help in reading, the discussion about his reading interests indicated that he had read most of the C. S. Lewis books. His comments about the books were extremely intelligent and suggested a strong interest in reading many kinds of books. He said that he had just finished reading *Pippi Longstocking* for the third time and that it had replaced *Henry Huggins* as his favorite book. He volunteered the information that he liked both books because they made him laugh. He said, in fact, that he liked those books so well that he even enjoyed reading them aloud. Pressed for an explanation of that statement, he explained that he definitely did not like to read anything out loud; however, when a book made people laugh, the reading was worth it.

What are the qualities of humor that amuse? Are they easily definable? Perhaps not. It is likely that much laughter is undefined. A reader is aware of humor in a story but does not readily paraphrase it. Consider, for example, the poem "The Owl and the Pussycat." The poem may not seem to be a particularly humorous piece of literature. Some time ago, however, the *New Yorker* published a cartoon based on the poem. The picture was of two owls facing each other on a tree branch. And the caption read, "They're never getting me out in a pea-green boat with any pussycat!" (6). That cartoon puts the humor of the poem in focus, in a sense, and uncovers an element of incongruity not readily apparent to an unsophisticated reader.

It is easy to skirt the edge of interpretation when it comes to the discussion of humor. Children are asked

whether they think a book is funny, but rarely are they asked to explain why the book is funny or how it is similar to another humorous book. An important aspect of reading instruction involves the analysis of certain characteristics in books which stimulate reader interest. Such work is sometimes treated as reading for interpretation, sometimes as reading for appreciation. Too often, it is not dealt with adequately. There seems to be growing emphasis on a skill development program based on material which deemphasizes meaning. The crucial role of literature becomes clear if there is to be a counterbalance of attention to the higher comprehension abilities.

The theory of humor

If humor is to be considered as a basis for study, it is necessary to consider it in some structural arrangement. One of the most scholarly classifications of humor stimuli was published by Stephen Leacock (4). His theory of humor is built on a superstructure which includes humor derived from words, ideas, situations, and characters. Each of the elements of humor suggested in the classification is clearly related to episodes in literature which cause laughter.

According to Leacock, the humor attributed to characters may arise from sympathetic appreciation of a predicament, or it may be based upon the misfortune of others. Such character humor is common in children's books. Laughter at a predicament is well defined in the "doughnut scene" from McCloskey's *Homer Price*, and laughter at the misfortune of others is evident in Lawson's *Mr. Rrøere and I*. Some character humor might be designated as an avenue of release from tension or as a vicarious way of showing dislike for enemies, as is evident in the laughter of one character at the expense of another. Leacock points to humor in "exultation—the sense of

personal triumph over one's adversary or sense of delight at seeing something demolished or knocked out of shape" (4). The burglar scene from *Pippi Longstocking* is a fine example of the laughter generated by release from tension. Pippi, alone in the world, is apprehended by two burglars while she is happily counting her gold. The reader, knowing that Pippi is a super-girl, feels some measure of confidence in her ability to take care of herself. Children will chuckle at small parts of the episode, but the real laughter comes when Pippi is really in trouble and quickly dispenses with the burglars by putting them, quite literally, on a shelf.

Another unit of the Leacock classification, the use of words as humor stimuli, has been the subject of many investigations. Freud considered adult humor to be mostly play on words, puns, and absurdities (2). Other types of humor of words include repetition of words and alliteration, bad spelling and typographical errors, misuse of big words, faulty sentence structure, proper names altered to amusingly similar words, and satirical presentation (4). There are some fairly obvious examples of humor of words in well-known children's books. The works of Kipling and Seuss abound with alliteration. Bad spelling is found in *Dorp Dead*, *Tom Sawyer*, and *Pippi Longstocking*, as well as many other books. One of the most recent characters to misuse big words is Janie in Konigsburg's *From the Mixed-Up Files of Mrs. Basil E. Frankweiler*. A fine example of an altered name is the scene from *Mr. Popper's Penguins* in which Mr. Popper tries in vain to communicate with the people at the license bureau. As the confusion grows, Mr. Popper's name undergoes a number of changes, much to the delight of young readers. The humor of words is evident, at quite a different level, in the satirical presenta-

tions affected by the animal characters in Lawson's *Mr. Revere and I* and *Ben and Me*.

In addition to the humor of characterization and humor of words, Leacock identified the humor found in situations. He described such humor as "discomfiture, horseplay, incongruity, and confusion" (4). Sidis, in an analysis of humor, points out the laughter directed at a person or action that is ridiculed. He suggests also that humor frequently arises from surprise at the unexpected and deviation from the customary (8). These elements of humor appear in books for people of all ages. The person familiar with a child's reactions to stories will recognize the surprise element as a favorite of most readers. Laughter as a form of ridicule is at once sophisticated and childish. Such humor often seems to serve as an outlet for inner feelings of insecurity. It is possible that an analysis of children's reactions to such situations might indicate the importance of laughter as a type of therapy. Consider, for example, the laughter stimuli in stories such as *A Pocketful of Cricket*, *Roosevelt Grady*, and *Pippi Longstocking*. The outstanding element may be surprise, but much of the laughter generated by surprise is actually laughter stemming from a release from tension.

There are many selections from children's literature pertinent to the category of humor labeled "situation humor." One passage which is an almost classic example of discomfiture and horseplay, both represented in the same episode, is from Farley Mowat's *Owls in the Family*. The reference is to the description of the "tailsqueeze game" in which Wol, the owl, patiently stalks the sleeping dog, Mutt, and sneaks up close enough to screech and squeeze Mutt's tail with his big claws. Mutt awakens, only to find Wol staring innocently at him from top of a tree.

The scene from *Homer Price* in which the Super-Duper emerges, hurt and nearly weeping, from his wrecked auto is certainly a form of incongruity. So is the description given, in *Owls in the Family*, of Wol climbing a tree instead of flying to the top. As for the humor of confusion, one of the clearest and most enjoyable examples is the memorable bus scene in *Henry Huggins*.

Research on humor in literature

A look at book titles listed as favorites by children in grades three through six leaves little doubt as to the importance of humor. A third grade teacher studying the reading interests of children in her class reported that all of her third graders were able to find humor in books which she read to them, but many children did not find humor in books they read to themselves (1). It is likely that both reading difficulty and group dynamics influenced the responses. Some of the books read to the children and enthusiastically recommended as funny were *Homer Price*, *Mr. Popper's Penguins*, *Mary Poppins*, *Pippi Longstocking*, and *Ben and Me*.

Many of the same titles appeared on a list of best-liked books in a 1965 survey of the reading of fourth and sixth graders (2). Among the books best liked by fourth grade girls were *Pippi Longstocking*, *Henry Huggins*, and *Mary Poppins*. Books listed by fourth grade boys included *Pippi Longstocking*, *Henry Huggins*, *Tom Sawyer*, and *The Cat in the Hat*. One of the favorite books of sixth grade girls was *Pippi Longstocking*. The sixth grade boys liked *Tom Sawyer*, *Homer Price*, and *Henry Huggins*.

It is interesting to note the responses to books that are heavily loaded with humor. It is evident that *Pippi Longstocking* appeals to a wide age range and that *Tom Sawyer*, which appeared on best liked lists more than

twenty years ago (10), is still well liked. In fact, as early as 1924, the companion book, *Huckleberry Finn*, appeared on a list of books best liked by boys (11).

Although the appeal of a humorous book has been suggested by many contacts with children's reading, there have been few attempts to make in-depth studies of the specific characteristics which make books humorous to children. It is necessary, of course, to delineate the kinds of humor likely to be represented in books and to concentrate attention on those likely to be of interest to children.

One study, done with fifth graders, represented an attempt to learn what children found humorous about the books they read (5). The writings of Stephen Leacock and others provided a basic structure of humor which included laughter at characters, surprising happenings, impossibility, play on words, and the ridiculous or incongruous situation. Some of the selections used in the study were from books appearing on the lists of books best liked by third, fourth, and sixth graders. The fifth graders read excerpts from *Pippi Longstocking*, *Charlotte's Web*, *Owls in the Family*, *The Cricket in Times Square*, and *Henry Huggins*. They judged each selection as "funny" or "not funny" and indicated the funniest sections of the excerpts.

All of the selections were enjoyed by a fairly sizable percentage of children questioned. It is not surprising to find that *Henry Huggins* received a great number of positive responses. Some of the answers to the question What did you think was funny about the story? were 1) when Henry and his dog got on the bus; 2) when the lady dropped her bag of apples; 3) when the fat man said, "Well, I'll be dog-goned!"; and 4) when Ribs started for

and the hose wrapped around the passengers.

The aspect of the story most often chosen as humorous was the description of Ribs moving toward the front of the bus while the hose wrapped around the passengers. Apparently in the excerpt it was the picture of a totally ridiculous situation that most amused the readers.

One of the selections taken from *Pippi Longstocking* was the scene in which two policemen visit Pippi, intending to take her to a children's home. Children said the selection was funny because 1) Pippi lived alone and didn't have anyone to take care of her; 2) she wanted to bring monkeys into the children's home; 3) Pippi told the policeman that she was a tiny little auntie who lives on the third floor at the other end of town; 4) Pippi was teasing the policemen; and 5) she said "pluttifikation." References to the last statement and other clever uses of words were the sources of humor mentioned most frequently.

A second selection taken from *Pippi Longstocking* was the burglar scene which ends with Pippi as the victor over two thoroughly cowed burglars. Children said the episode was funny: 1) because the burglars thought Mr. Nilsson was a man, not a monkey; 2) because Pippi could lift those two men; 3) because the burglars' names were funny; 4) when Pippi took the suitcase back from the burglars, and 5) when the burglars jumped down from the wardrobe and threw themselves on Pippi. The element of humor identified by the largest number of children was the surprise when the burglars mistook the sleeping Mr. Nilsson for a man rather than a monkey.

Several different elements of humor (amusing characters, surprising events, impossible happenings, play on words, and totally ridiculous situations) were evident in each of the excerpts used in

the study. In each story, however, one element dominated the reactions of readers. And yet, despite that dominance, there were responses made by individuals to the other kinds of humor represented. It was evident that not all children liked the same selections and, just as important, that not all children liked the same element of humor in a given selection. Although space limits the discussion here, it might be noted that there were indications of some differences in the responses of sex, intelligence, and socioeconomic groups. Further research might well give information about the reactions of children from more carefully defined subgroups.

Analysis of the theoretical framework of humor and of the humor found in literature gives evidence of a multidimensional effect. The dimension, which is fairly easy to study, deals with the various elements of humor represented in literature for children. Another suggested dimension involves the level of sophistication of humor present in a story, the contrast between slapstick and whimsy or of broad humor and subtlety. A type of humor, such as laughter at a character, may be represented at a simple level in one story and at a more sophisticated level in another. Some work has been done with analysis of humor of adults and children. A study done in England found that children's jokes made more use of excessive exaggeration than did adults' jokes. There was also greater amount of slapstick humor evident in children's humor than in that of adults (9).

The selections chosen for discussion here represent a fairly straightforward type of humor. More subtle varieties of humor were used in some of the other selections, although no attempt was made to analyze responses of children to selections representing various levels of sophistication.

The bus scene in *Henry Huggins* is,

essentially, broad humor. Henry succeeds in getting on the bus with Ribsy, only to have him escape from the paper bag and cause chaos among the passengers. There is a certain amount of tension building up in the scene, accompanying the question of whether Henry will succeed in fooling the bus driver this time and will reach home successfully with the dog. Ribsy's escape brings the whole thing into the open, thus releasing the reader from the fear of Ribsy's discovery. The reader has a chance to laugh at one of the many amusing people. Descriptions are vivid and to the point. Katharine Kappas, (3) in her excellent article on children's responses to humor, suggests that the humor in *Henry and Ribsy*, results from accidental, rather than intentional, troublemaking. She notes, also, that the whole essence of the book is well suited to the background and interests of children who will read it.

A somewhat different treatment of humor is found in Lawson's *Mr. Revere and I*, another story which generates a good deal of laughter at characters. Lawson's story uses words of greater abstraction and less straightforward description. Much of the humor is generated by use of Scheherazade's interpretation of characters and situations in the light of her own experiences and observations. It also is interesting to consider the humor in books like *The Wind in the Willows* and *Winnie-the-Pooh* which have appeal to a wide age range. Apparently different levels of interpretation are put into operation at early and later ages, providing interest to young as well as more sophisticated readers.

Humor as a factor in selection of materials

One of the important and obvious keys to successful reading guidance involves knowing the characteristics of books which are likely to appeal to cer-

tain age groups or to individual personalities. A youngster may be very interested in books which are characterized by humorous use of words, puns, or play on words. When he finishes one book of this type, it is likely that he will ask for another. Similarly, another child who is captivated by a book with a strongly humorous character is likely to request more books like the one just completed.

The task of filling book requests is monumental. A computerized system would be useful and is, in fact, being used in numerous situations. However, the typical elementary school book collection, whether housed in the classroom or in the library, has yet to be placed under the care of a computer. Reading guidance still requires that the book to be recommended be known by the adult who serves as a reading resource person. Acquaintance with the child's interests and with his reading ability is another important, if not essential, factor in reading guidance.

It is quite possible that some of the burden for book selection can be shifted from the teacher or librarian to the child. Indeed, a good many teachers now utilize self-selection of reading materials. Suppose, for example, that a chart is kept near the library corner. On the chart is the bold heading **BOOKS TO LAUGH AT**. The chart is divided into two columns, one headed "animal characters" and the other titled "human characters." Whenever a child finishes a book which he definitely classifies as "humorous," he enters the title in the corresponding column. The cumulative list, then, serves as a source of suggested reading material for others in the class. If another child wants a book with humorous animal characters, he can browse through books listed in that column.

The proposed chart might be developed on a more sophisticated level, to

include column headings such as "humorous characters," "funny words," or "unexpected incidents." An important addition to the chart would be the page listings of favorite passages for each book. In this way, a would-be reader has a guide to his examination of the book. The child recommending the book benefits, also, because he is called upon to evaluate and read critically for striking passages.

Consider some of the books that come to mind as excellent examples of humorous literature. Are there elements of humor which are strikingly apparent? Do the books appeal to some children but not to others? What passages of the books would you designate as favorites?

From the Mixed-Up Files of Mrs. Basil E. Frankweiler, the 1968 Newbery Medal winner, is a book which contains some wonderfully humorous episodes. One sixth grade teacher read the book to her group and asked for reactions. Responses suggested a high level of interest and a fair amount of agreement as to the most amusing parts of the book. A great many children were captivated by the way Claudia planned diligently for the trip and by her clever scheme for the escape. A number of children expressed interest in the frequency with which Claudia corrected Jamie's grammar. Responses of these sixth graders indicated that the two episodes in the story which they thought most amusing were the ritual of hiding in the toilets during after-hours check and the bathing in the fountain. Laughter at the unusual and unexpected is strongly evident.

The Joseph Jacobs setting of *Tom Tit Tot* presents words in some new forms and generally elicits a good deal of laughter at words and at characters. There are a number of scenes in *Henry Reed, Inc.* which provide ample opportunity for laughter at confusion and also at words. Agony, the

dog, and Siegfried, the cat, whose names match their noises, are in the middle of much of the confusion. These few suggestions will certainly call to mind other fine books or parts of books which have recognizable elements of humor.

Summary

The sixth grader referred to earlier, who read omnivorously but disliked the task of oral reading, was extremely intelligent about books. He knew many books and knew them well. Not all of the books he mentioned as favorites and/or humorous had appeared on lists of books taken from studies of children's reading habits. The preference of an individual is strongly evident. Yet the two books he found particularly amusing were well liked by large numbers of children in grades four through six. He was eager to discuss aspects of books which he felt were unusually appealing. And he made some very wise suggestions as to parts of books which might appeal to other sixth graders.

Youngsters who find little to interest them in books gradually cease reading anything except required material. The lack of interest may be closely related to inability to use reading skills adequately. However, it also seems likely that the child who rarely expresses enjoyment of books is not aware of what he does like to read. He needs acquaintance with specific elements of books, such as various types of humor, and a chance to do his own evaluation of reading material in terms of what currently appeals to him. If a sharpened focus on humor highlights enjoyment of reading, discussion of humor-producing elements in literature will likely stimulate greater interest in books.

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Developing Critical Reading Skills in Literature

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THE OBJECTIVES of the course in literature, briefly, are to acquaint pupils with the sources and values of different kinds of reading material, to develop their ability to use them critically and intelligently, and to develop in pupils lifetime habits of reading for information, for recreation, and to solve personal problems. There is no magic device that will achieve these goals. However, there are guidelines that are reasonably successful for diligent teachers who make efforts to adjust instruction to the needs of individuals.

Assessing needs

The first step is for teachers to learn more about the members of each class than merely to know the grade level. Teachers need to know details concerning the communities in which pupils live. They need an understanding of the pupils' economic and social backgrounds. They need to review cumulative records to become familiar with reading scores, intelligence quotients, and records of past school performance.

If this information is not available, teachers may prepare informal tests to assess reading levels and ability levels of the pupils in their classes. These tests may be a part of the regular instruction and a means of becoming acquainted with the pupils.

Even if test scores are available, some evaluative device at the beginning of each course provides recent, accurate assessment of each pupil's achievements, interests, and needs. For example, in order to test a pupil's comprehension of a certain passage of literature, a brief written recall is suitable. The pupil would read the passage, close his book, then summarize in writing what he has read. If the pupil's writing is up to par, this test will reveal whether or not the reader has comprehended the author's main idea and is able to separate the main idea from supporting details. For such a test the teacher must be alert to the pupil who writes so poorly that he cannot prove how well he can read. For such a student an oral recall quiz is a suitable instrument for checking reading comprehension.

Teaching would be very simple if all the pupils in a class had reached a certain level of achievement and could maintain the same level of performance throughout the year. This is seldom true.

As teachers survey their classes, they usually find that the reading lev-

els of the pupils vary from two to six or more years. In nearly all cases teachers are faced with the problems of providing some reading instruction as a part of the literature course. Good teachers have always recognized the necessity of finding out the strengths and weaknesses of their pupils and of finding ways to help them improve. Many teachers of literature, who insist that they know nothing about teaching reading, are busily helping pupils develop larger vocabularies, improve all types of comprehension skills, and learn to become flexible readers by setting the purpose for reading, then reading at the rate which accomplishes this purpose. They are guiding the pupils in the procedures that help them interpret the printed page and make maximum progress toward the goals listed at the beginning of this paper.

Organizing for instruction

Many successful teachers believe that requiring every pupil at a specific grade level to read the same difficult classic will not help all pupils to become able, appreciative readers. In fact in many cases it has made pupils dislike reading intensely. A method of motivating all pupils to read and teaching them to interpret the material read is valuable.

It is true that all pupils should be exposed to good literature. They should become acquainted with famous authors and with some titles and characters in literature. Many literary selections are now published in adapted and in simplified editions. This makes it possible and practical to assign the original version to the able readers, the adapted form to the less able readers, and the simplified edition to the poor readers. This provides an opportunity for class discussion and for maximum growth for each pupil. Some reading texts are also available in a regular and a simplified edition.

Pupils accept varied assignments

willingly if the problem has been discussed with them so they understand the reasons and are confident that the teacher has planned ways to help each person improve. Teachers use a variety of methods to organize classrooms and to adjust their instruction to meet the needs of individuals.

In a classroom where the same text had to be used by a class varying widely in reading abilities, this plan worked successfully. The able students were responsible for nearly all the selections in the book. The less able readers read fewer stories accompanied by intensive instruction in reading skills. When both groups studied the same selection, the entire class read, studied, and discussed it together. The students were taught as two groups when different selections were used.

In another classroom involving heterogeneous grouping, each of the three groups studied a text at the appropriate instructional level. The teacher taught the three reading and interpretation levels separately during the entire year.

Many teachers have found that using a theme-centered approach to the study of literature is useful in meeting the wide differences in interest and in reading ability in each classroom. For example, in one of our secondary schools where many pupils are low achievers, the eighth grade English teachers planned with the librarian a unit on *A Search for Values*. The librarian prepared an attractive pamphlet containing a brief discussion of human values, an annotated list of books at appropriate levels, and a suggested form for reporting the values emphasized in each book. The teachers used many devices to stimulate the reading and discussion of the books. In the discussion periods, pupils noticed that respected authors had different points of view on issues and developed themes differently.

The librarian in this school has a record of the reading levels of each student from grades seven through twelve. When a teacher asks for a booklist for a certain subject for the class, the books fit the reading levels and the interests of that class. Each book on the list is classified as easy, average, or difficult so the child has some guidelines in his selection. The pupil may insist on checking out a difficult one so he can cover the easier one he is carrying home to read. He reads one and looks at the pictures in the other one so both books have had some value.

Commercial literature units with a wide variety of books on specific topics are available. Some of them provide excellent materials for the theme approach to literature. Books at various levels, student's notebooks and teacher's guidebooks are included in the unit.

A sixth grade teacher in one of our schools uses the theme approach very effectively with able sixth grade readers. The students become highly motivated and read more than the required number of books. This teacher stimulates discussion so that his students are able to do such things as to present the author's viewpoint, compare the book with similar and dissimilar books and compare characters' reactions to various situations.

In this class after a child has read a book, he selects a character from the book, plans a costume that would portray this character and prepares a short composition which tells this character's feeling in some part of the book. There are no dull book report days. On the day selected for reports, children don their costumes and read or tell their brief accounts. A picture is taken of each "character" and mounted on the bulletin board. Discussion of the presentations are encouraged. These children can read critically at their level and with contin-

ued instruction and practice will become mature readers who can read and react critically on current issues.

Identifying factors in teaching critical reading

Teachers of critical reading and thinking skills sometimes encounter two types of problems. The first is the influence of the teachers, parents, and other adults on the thinking of the pupils. Opinions have previously been formed. Acceptance of a climate of inquiry and critical evaluation requires a mature outlook on life and attitudes change slowly.

The second problem arises when the school, through the teaching of critical reading, introduces and encourages ideas and attitudes that conflict with those taught in the home. A child who questions, who evaluates answers, and who formulates opinions is a disrupting influence in autocratic homes and also in many classrooms.

A study of the factors related to a person's critical reading ability are very interesting. Those with superior intelligence are expected to respond more appropriately, but this is not always true. A broad experiential background will provide standards for comparison and is an invaluable aid to critical thinking. However, knowledge does not insure good thinking as some pupils seem unable to apply known facts to new situations. Also, a pupil's attitude toward the content may affect his ability to read critically. Personal prejudices interfere with accurate evaluation. Some pupils, as well as some adults, are prone to believe anything they see in print and are reluctant to think critically about even the most glaring examples of propaganda and "slanted" writing.

Developing critical reading ability

The reader must perceive words accurately and understand meanings intended by the author before he can

evaluate a selection. In other words, he must have a large meaningful vocabulary, he must be able to use context clues, and he must be able to identify main ideas and supporting details in order to comprehend the material. When the author's meaning is understood, the reader may recall other knowledge he has of the same subject and react critically to the author's viewpoint.

Critical reading begins simply with the first reading lessons and is developed gradually, though some children have learned to think critically before entering school. The level of critical reading achieved by each pupil depends upon the experiences of the learner and his ability to deal with them.

In the primary grades, children evaluate pictures in their books and the actions of the characters in stories. They learn to discriminate between fanciful and factual stories, select their favorite books, and express preferences in games and food.

Children at an early age are bombarded by a variety of television commercials. Some thinking surely must result from hearing on consecutive programs that each of two companies makes the best cereals or that each of several companies makes the best laundry detergent.

In the middle and upper grades pupils read widely in texts, magazines, newspapers, and reference books. Facts and sources must be selected and evaluated with care. For example, a fifth grade boy reported a figure for the population of London that was different from that reported by a girl in the class. Both were sure they were right. They had looked up the answers! The whole class learned a valuable lesson in using resource materials. The boy had copied the figures from an out-of-date encyclopedia at home. The girl had gleaned her information from an old travel guide.

An up-to-date source proved that both were wrong.

It is important that the reader be aware of the motives of an author. Does the author have sufficient background to make such statements? Does the author have a selfish motive in influencing people to believe him? Is this the author's complete statement or is it an excerpt taken out of context?

Readers should be willing to withhold judgment until they know enough facts to judge accurately. Pupils who read widely and acquire a wide experiential background of knowledge should be able to apply related facts to new questions. However, questions which require intermediate grade pupils to react critically to complex events in American history are not realistic. Scholars who have studied history for years cannot agree on their answers so we should not expect children to evaluate them.

Newspapers provide many aids in teaching critical reading. Observation of the way advertisements are written, practice in distinguishing fact from opinion and use of other critical reading skills can be accomplished from study of the pages of newspapers.

Evaluating critical reading skills

Teachers can observe growth in ability to read and think critically. Scores on tests which require some critical evaluation are an indication of progress. Immediate evaluation of the total effect of this instruction is rarely possible.

The ultimate goal is a thinking citizen who reads regularly to be a well informed citizen, who can recognize the forms of propaganda and who can react critically to current issues and situations.

Summary

Critical reading or critical thinking is one of the skills of a mature reader, developed gradually through in-

struction and through practice. Children, even in primary grades, should be guided by skillful questions to think about the things they read, or see, or hear, and to react critically. Even in upper grades many classes will need simple lessons in this art before attacking the more complex. Exercises to practice various critical reading skills provide good insights.

The broader a student's background of knowledge, the more information he has available to guide him in his thinking and to provide comparative data for his evaluation of new ideas. That is one of the reasons that wide reading on a variety of subjects is so necessary. Ways to help all pupils read better so they enjoy it more and read more are important in stimulating critical reading.

As students learn to read and listen with critical judgment they begin to understand the meaning of life and to acquire a sane philosophy of living. Their minds are alert and eager for new ideas and information. As they become mature readers they read between the lines to seek the truth. This is the kind of reading required to make them intelligent, responsible citizens and alert, well-informed individuals.

Developing Interests and Tastes

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"OH, OH, OH! . . . the dogs are sticking to the sidewalks. The whole world's at sixes and sevens," cries Sabina in *The Skin of Our Teeth*. Thornton Wilder wrote the line in 1942. Sabina spoke it during the Ice Age and again after the Great War. She might well repeat it today.

The "sixes and sevens" mood permeates the decade. Not for lack of aliteration alone does one refrain from

calling it the Fabulous Sixties. Tigers are in the streets; a blight is on the rose, and mankind is sick of many griefs—reasons why it is ingratiating and necessary to talk today about children's literature.

Literature is no hocus-pocus. Good books written and read will not completely thaw the world's sidewalks nor cure all social and psychological illness. Yet literature cannot be dismissed as mere "escape," relegated to idle hours of forgetfulness and euphoria. Adults over-honor the "escape" clause of literature, making *Peyton Place* the fiction best seller of all time. Children with half an opportunity to select and consider commit no such error. They read for joy, not anesthesia, and with a sense of search for meaning that transcends any theory of didacticism one has ever espoused.

The roots of literature are imbedded in play. In much educational theory, the concept of play is forgotten. It is considered the antithesis of work and usefulness and, therefore, ignored. People who ignore the concept of play ought to paste this statement by Philip H. Phenix on their bathroom mirror: "When the play spirit dies, the freshness, joy and spontaneity of life are quenched, and routine, compulsion, and mechanization supervene" (7). Characteristics of play are delineated by Huizinga, who explains that play is voluntary; it has elements of make-believe, of the extraordinary, and a balance of tension; it is limited spatially and temporally—in other words, is specific and immediate; and it is conditioned by order rather than chaos (5). The pertinence of play to serious living and learning is a theme of some of our writers, as when a Lawrence Durrell hero opines, "We should tackle reality in a slightly joky way, otherwise we miss its point" (3). In the best books there is intense purpose, sincerity, and integrity of theme; but none of these

qualities is contradictory to the concept of play.

The play mode in children's literature permits a wide latitude in reader-author partnership. The best books and the best parts of some lesser books encourage the play attitude. Take the opening of Elaine Konigsburg's *Jennifer, Hecate, Macbeth, William McKinley, and Me, Elizabeth* in which the heroine discovers a witch's foot dangling from a tree limb. Almost any reader will go voluntarily into the situation while pleasurably tensed to explore the outcome of the encounter. The sense of play is present, too, in many episodes of Beverly Cleary's *Henry Huggins* series, where specifics are used to elucidate the generalities of a happy boyhood.

The play element need not be humorous. It requires mainly that the author draw the reader into the play mode: a sense of make-believe or the subjunctive; the specificity; and the artistic application of inherent form, without which experience lacks interpretation and significance. The long opening chapter of Madeleine L'Engle's *Meet the Austins*, for example, is tragic. It is especially moving because this author sharply contrasts a happy family setting with the sudden shattering event of death. She is skilled enough to capture voluntary interest in her characters and to discern intrinsic order in what might otherwise be a chaotic division in mood and event. In all three of these examples, the characteristics of play can be sighted in reader-author interaction.

When the play mode is lacking in a work, the loss is almost immediately noticeable. The author ceases to tap the reader's springs of voluntary interest. He wheedles and exhorts. He assumes a preachy attitude, a read-this-because-it-is-good-for-you stance. Or he leaps from the extraordinary into the sensational, creating artificial tension. He imposes order and form

out of duty rather than spontaneity. These things happen in all three of these works, though each is excellent reading because of the good parts. But the play mode is temporarily broken down, forcing the author to resort to lesser means of maintaining the partnership.

As he reached the conclusion of his historical analysis of play, Inuzinga mourned its loss. He wrote, "Civilization today is no longer played, and even when it seems to play it is false play . . ." (5). The statement was made a quarter of a century ago and might be applicable today, but not necessarily so in instances of children reading literature. Now, as never before, children's literature makes meritorious play available. It is up to the keepers of this form of the play mode to see that availability gets nurtured into action. How can this task be done?

The first suggestion is that educators read. Simply to say that a classroom must have from two to five titles per child is like saying that a doctor ought to have that many bottles of vitamins per patient. What *kind* of books? What *quality* of books? Only the teacher and librarian who read can know. No handy set of general questions for exploring books in general can supplant the real need, which is the need for a reading teacher who reads. Data are lacking on the question of whether teachers (and education professors, too, for that matter!) do read extensively and intensively in children's literature. But various studies of teachers' reading raise doubts as to whether the teacher-who-reads criterion is being met (8). As research focuses more strongly on the variable of teacher personality and preparation, perhaps one will find that the teacher's awareness and familiarity with children's books poses potency. The teacher is the intermediary, the

dilemma, between author and child

reader. The teacher dare not depend upon childhood memories of beloved books or a quick scan of lists and stacks of current fare. He must be a teacher who reads children's books, presently and actively.

The second suggestion is that educators read aloud. There are many reasons for this, some newly realized. Their total impact is unmistakable: literature requires a substantial amount of excellent presentation by a skilled reader. Take some of the works of the past, written for an audience less likely to grow restless over a slow beginning. The opening sentence of the finest of all adventure stories, *Kidnapped*, has never been equaled:

I will begin the story of my adventures with a certain morning in the month of June, the year of grace 1751, when I took the key for the last time out of the door of my father's house.

And the entire first chapter is a masterpiece of stage-setting and anticipation-building. But many children do not go voluntarily alone into Stevenson's labyrinth. Perhaps one has been conditioned by television shows that flaunt action even before the title. At any rate, a skilled oral presentation is needed for exquisite but leisurely passages, for heavily expanded syntax, and, in general, for books whose merit may escape the reader intent upon quick payoff instead of full involvement in the play mode which good books sometimes invite quietly.

Books, such as *Kidnapped*, *The Wind in the Willows*, *The Phoenix and the Carpet*, *The Sword in the Stone*, and *The Bat Poet* sometimes ask for greater reflective thought than pupils can manage. Reading becomes a lonely job. At such times, the oral techniques—oral interpretive reading, storytelling, dramatization—contribute to the development of interest and taste.

In many instances the discrepancy between a child's decoding ability and

his comprehension capacity is considerable. This rift has become especially apparent as linguists discover the syntactical complexity of children's speech and reading. It is yet another reason that many teachers see value in decoding complex material for their pupils. In this way, pupils are enabled to comprehend on a level of appreciation and taste at which they are capable. Those who work with small children have always known this fact. They would not rule out *Peter Rabbit* or Wanda Gag's *Tales from Grimm* simply because these works are too difficult for many children to decode. But the case favoring oral reading of fine literature needs to be made again and again at all grade levels and even into adulthood. Note, for example, the adult excitement engendered by Hal Holbrook's readings from Mark Twain.

A third suggestion is that one pursue the concept of excellence in children's literature. This point has little to do with picking the "best" book of the year, which Northrop Frye compares to giving ribbons at a cat show (4). Nor does it mean dichotomizing a writer's efforts into good and bad. It is chiefly concerned with discovering the quality of reader reaction which a literary work is capable of eliciting.

This category assumes not only familiarity with works of the past but also exploration of the "growing edges"—innovations in current literature. Unless one attends to such innovations, the act of reading is likely to become stagnant.

Consider, for present enjoyment, three trends in current literature. The first is the apparent renewed interest by some children's writers in first-person narrative. First-person has been something of a taboo in recent years. One child was heard to exclaim, "This is one of the I-books, I don't read that kind." May Hill Arbuthnot remarks on the unpopularity of first-person

narrative in her review of *Hitty, Her First Hundred Years*: "This is a form children dislike, and it has been a handicap to *Hitty's* popularity" (1). The topic is explored, too, by Marcia Brown in her great essay "The Hero Within," which appears in *Elementary English* in March 1967. Miss Brown states: "I suspect that many children dislike what they call 'I' books because such books force them to remain outside the characters. 'I' is a person who is not the reader" (2).

It is surprising, therefore, to discover a trend toward use of first-person. Both of Elaine Königsburg's books, one a Newbery winner, use this device as do *It's Like This, Cat*, the aforementioned *Meet the Austins*, Joseph Krumbold's new *Henry 3*, and others. The first-person device does not appear to be a hasty or unwise choice in such books. Nor does it seem now to stand in the way of readers when it is clear to them that, without the use of first-person, the book simply could not come alive.

In these books, first-person is indicative of a new option in prose style. The books mentioned are less dependent upon traditional "book prose" than upon the syntax and diction of the way people talk and think. Krumbold in particular writes a "talk" type of prose, enabling a reader to know Henry Three's reactions in his own words—perhaps the most subjective treatment in children's literature. The episode of the hurricane, coming at the climax of the book, is filled with fragments, ellipses, and other gorgons apparently calculated to disturb the sleep of grammarians and general semanticists. They may be insensitive to stylistic tradition, but they are "tuned in" to Henry. They tap Henry's consciousness, as once did similar stylistic innovations in *Huckleberry Finn* and *Catcher in the Rye*.

Not too long ago some teachers objected to the ugliness of Marcia

Brown's pictures in *The Three Billy Goats-Gruff*. Marcia Brown's troll is uglier than an eroded rock, which he resembles. He is just the troll for arousing make-believe and involvement—in other words, the spirit of play. In *Where the Wild Things Are*, the pictures take over the climax of the story, crowding out the text altogether. Again in *Hector Protector* and *As I Went Over the Water* Sendak lets his pictures tell a story of their own. Beni Montessor's king and queen in *May I Bring a Friend?* seem totally oblivious to the text; they rush about capturing butterflies and tennis balls, actions which do not appear in the words at all and which some adult readers, too intent upon print, do not perceive.

Last year Montessor went a step beyond when he did *I Saw A Ship A-Sailing*, which he subtitled *The Wonderful Games That Only Little Flower-Plant Children Can Play*. Look at "Jack Be Nimble" in that book. They are all inside a hippy-red sort of circus tent: Jack and his family are posing to have their pictures taken during the great event while wearing their names, which are Liz, Doune, Bruce, Jane, and David. An angel and a witch peep over the tent wall. A blue horse with an immense seaweed mane and with a good rider prances in. There is wax beneath the great candle and a blue bird and something looking vaguely like an owl gazing on. At the center, there is Jack—wearing wings, of course, and the serious look of the skilled performer. All for an eleven-word rhyme about hopping over a candlestick!

This year Ann Grifalconi has illustrated Elizabeth Bishop's *The Ballad of the Burglar of Babylon*, using woodcuts in blue, olive, and brown. People who once objected to or ignored *The Three Billy Goats Gruff*, *Where the Wild Things Are*, and Montessor's hippy-red may find *The*

Ballad of the Burglar of Babylon a bit objectionable, too. It is not quite suitable for children. But neither is rioting, war, or disease.

It would be too bad to miss this picture book innovation, for it is an innovation. One is likely to miss it if one thinks of picture books as "prebooks" confined to the nursery or the illiterate. One is going to miss it unless one realizes that modern printing and buyer-demand pitch a hundred or even a thousand run-of-the-mill picture books at the public for every "gem" picture book. The difficulty is that every great picture book is, almost by definition, completely unlike any other great picture book. It disturbs the palate. One does not give its uniqueness time to reeducate to a new way of seeing and perceiving. Without this time and openness for response, one may miss the true quality of reader reaction which can be elicited by *I Saw a Ship A-Sailing*, *The Ballad of the Burglar of Babylon*, and Harriet Pincus' *The Wedding Procession of the Rag Doll and the Broom Handle and Who Was In It*.

When in 1957 Max Lerner labeled children's literature "cute and trivial," he might have had the *problem story* in mind (6:567). The plan for the problem story was easy; one created a character with some specific trouble and had him solve it. Or, if the character could not solve it, the author manipulated events a bit so that it got solved anyway. It was a neat formula.

The real trouble is that some problems are diffuse. They cannot be summarily stated on page two or chapter one. They are complex and inseparable from the whole texture of character, setting, and action. They cannot even be subjectively labeled.

That is why *Shadow of a Bull* has distinction. Manolo's problem is more than fear of fighting a bull. It is even more than fear of being suffocated by the people's memory of his father. It

is not a problem of *life adjustment* so much as a mystery of *being*.

Queenie Peavy, too, has this distinction. Queenie's problem is Queenie. If one changes Queenie a bit, one can help solve the problem, but Queenie will have been destroyed. If one transforms her father into a decent man and alters the poverty and squalor, one improves Queenie's circumstances. But there will still be a Queenie with a problem. One senses, in reading both *Shadow of a Bull* and *Queenie Peavy*, that these books dared to defy their makers. They may have begun as acceptable problem stories, but the problems devoured the formula. And even though the authors manipulated events a bit and tried to make it all come out right in the conclusion, the books continue to reveal mystery of the human condition—open and aching, like a wound.

The three innovations so sketchily mentioned here are somewhat disturbing. Prose style seems to be changing. Is the direction of change toward more sensitive communication or is it toward language decadence? Picture books are producing more surprises. Are these surprises really awakeners of perception or are they just designed to shock us, ultimately to deaden response? The problem story begins to diffuse, to abandon the smile-and-be-happy quick solution. Is this trend an

end to optimism and rationality? Only as one explores and reaffirms tastes in literature can one know for sure. To do so ought to be one's immediate business and the immediate business of pupils.

All three of these innovations have to do with the freeing of bonds. They show unwillingness, though not necessarily inability, to color within the lines. Their authors thus far are neither angry nor revolutionary. They still go by the touchstone of play, even though it is often serious play. Unlike the revolutionaries, whose substance is anger, they make positive contributions to the development of taste. At a time of worldwide "sixes and sevens" they set out beacons to guide.

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CURRICULUM AND ORGANIZATION

CURRICULUM

Curriculum Trends in Science

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WHILE SOME OF THE TRENDS and directions described in this paper apply from kindergarten through high school, the emphasis is on science in the elementary school. While the chief emphasis is on curriculum, some discussion of methods of instruction is bound to creep in since the two are closely related.

Any significant contribution toward curriculum improvement in science is based on an understanding of what science is and what it should do for pupils in the elementary school. If science is conceived as an accumulation of facts, curriculum construction follows this lead; if it is thought of chiefly as a process of discovery, a quite different program results. If, on the other hand, science is conceived to be a process as well as an organization of the ideas that are discovered through the use of the process, the curriculum assumes still another form. The nature of science itself along with a concept of the objectives are prime considerations that influence the work of curriculum makers. There are, of course, other considerations that are determining factors.

What is science? What should it attempt to do for children? How can these objectives best be realized? What kind of a curriculum—content and organization—is most appropriate? How important are the interests, needs, and abilities of pupils? These questions and others like them

must be answered before intelligent curriculum construction can proceed.

There is as much ferment in curriculum-making in science as there is in many of the other subject matter fields. During the past ten years, significant changes in science instruction have taken place at every level. National projects have been responsible for some of the changes, state departments of education as well as city and county schools have been active in producing bulletins and courses of study which have influenced the changes. Faculties of colleges and universities have also influenced the directions. It is difficult to generalize from all of these efforts and it is likewise difficult to tell which changes and emphases are substantial and broad enough to be called trends. These efforts have resulted in more science teaching and, in most cases, better science teaching.

National projects

Probably the greatest single influence in curricula change in recent years has been the national projects which are subsidized through large grants from the National Science Foundation. These projects and their publications have received wide publicity. Many of them have built-in teacher training programs which have contributed to their wide use.

Not all of these projects concern themselves specifically and directly

with the area of curriculum construction, some are chiefly concerned with procedures which help children to learn science, some are experimenting with teaching new science subject matter or with other emphases that may only relate to the curriculum and its development. One such project sponsored by the American Association for the Advancement of Science labels its efforts *Science—A Process Approach*.

As the label implies, the emphasis is almost entirely on process, with subject matter in second place. A given area of subject matter is often selected chiefly because it lends itself to process rather than because the subject matter has special importance to children. The Process Approach Curriculum is built on the supposition that there is a hierarchy (rank and order) of processes beginning with those thought most appropriate to very young children and progressing as children mature in their ability to more mature methods of discovery.

As examples, early grades concentrate on activities that emphasize observing, classifying, using numbers, communicating, measuring, inferring, and predicting. Later grades build on these and add the following: formulating hypotheses, controlling variables, interpreting data, and experimenting.

While this process approach is probably one of the most radical departures in curriculum construction, all of the national projects as well as other forward-looking programs give considerable attention to the process of discovery. Many of these projects are concerned with isolated areas of learning as examples of how curricula may be made. Some deal with new areas of subject matter not previously used in elementary programs, some emphasize new organizations of subject matter designed to interrelate various disciplines. Some are attempting to demonstrate that children can learn more difficult, abstract science concepts,

without, alas, not always demonstrating that they should.

Other influences

Examining the courses of study and curriculum bulletins prepared by groups other than the national projects, we find some using a problem approach, some concentrating on conceptual schemes—a modern version of the major generalizations—which has been in use for many years, and some emphasizing to various degrees a process approach. Many are combinations of all of these.

Someone has said that in science we have the "Universe and other things" to choose from in our attempt at curriculum making, and indeed this is true. The problem, then, is how to select from this material that which is appropriate for various grade levels so that the result will introduce children to the various disciplines of science as they progress through their school experience. All of the curricula that are more or less subject matter oriented attempt to identify large areas and break them down into smaller unit pieces. The conceptual schemes, for example, consist of several broad statements of subject matter which can be broken down into smaller generalizations and principles and used as a guide in distributing the subject matter from kindergarten or prekindergarten through the grades, into the junior and senior high school.

For many years, those responsible for curriculum development have recognized the importance of a K-12 organization. Progress in this direction, however, has been slow. Elementary school, junior high school, and senior high school personnel have persisted in the practice of operating on their own, without much regard for the work of others. With the recent increase in the development of specific curricula at the elementary level the necessity to plan a 12-grade sequence has become

more urgent. Many school systems are making renewed efforts to bring such programs into existence, in many cases with good results.

Evaluation

No matter what the source of the curriculum material—local, state, or national project—before the material is adopted for use there are certain questions that should be answered about it:

1. Has it been tested with pupils and is there a built-in evaluation process?
2. Is the suggested subject matter accurate and appropriate to the grade levels?
3. Does it take into account local conditions?
4. Does it make an attempt at meeting in so far as we know them, the needs, interests, and abilities of children?
5. Is it built on sound objectives and are these in line with the general and specific objectives of the total school program?
6. Is it balanced in that it includes material from the many disciplines of science—biology, zoology, astronomy?
7. Does it take into account what is known about the psychology of learning and child growth and development?
8. Does it lend itself to helping children learn and establish some balance between the process of discovery and discovering some significant science.
9. Is the teaching staff educated to teach the material selected or are there provisions for teachers and others to be trained to succeed with it?
10. Are there provisions for exceptional children—the interested and talented as well as the slower learners?

Textbooks

The textbook cannot be overlooked as a basis for formulation of the science curriculum. Although there are no reliable statistics to quote, experience indicates that the basic textbook or books is still a very significant factor in the selection and organization of material. Often it is the *only* available source, and thus becomes the curriculum. Even when there are courses of study available, teachers (especially

those who do not feel at home with science teaching) often rely on books to determine what to teach and how to teach it.

When local groups engage in curriculum making, their first steps often consist of an examination of the scope and sequence charts prepared by the publishers of textbook sequences.

Personnel

Time was when educators were chiefly responsible for curriculum reform. To some extent this is still the case. In the case of government-supported projects, scientists, psychologists, and college science teachers have assumed a prominent role in promoting the changes. The teacher's chief contribution has often been in trying out the material with children in classrooms, reporting their findings, and in some cases assisting with revisions. The results have been best where the contributions of various personnel have been identified and provisions made for these talents to be wisely used.

When we consider what is actually taught in the classroom we cannot overlook the part that children play in the actual selection of subject matter. Often this is a very useful part; sometimes it is most unfortunate. For example, teachers sometimes ask children without any previous experiences, "What would you like to study about plants?" Whereupon children try hard to think of questions that will bring a response of delight from the teacher as she places the question under the heading *We Want to Know*. This practice is mostly nonsense or worse. The children spend their science time tracking down answers to such questions as, "What is the littlest plant? What is the biggest plant?" This can scarcely be considered good procedure. If on the other hand the teacher sets the stage with some eye-opening experiences about plants that cause children to wonder and be per-

plexed, they begin to identify significant problems. More are added as open-ended experiences continue. The teacher may also add some problems to round out the study. Here children and teachers are making some sensible decisions about what shall comprise the details of a curriculum.

In our zeal to produce helpful material for elementary school teachers, many local committees have been formed—often composed largely of teachers themselves, who in many situations are the first to admit that their knowledge of science and their experience in teaching it are meager. Such groups must have leadership experience in science and elementary education if they are to be effective. While it is true that teachers and others are likely to profit from their work as members of these curriculum committees, the ultimate results may not be very helpful to others. This is not to say that teachers and local groups cannot contribute toward curriculum making. They can indeed, but we go farther if we identify these contributions and use them wisely. Teachers will do well to inventory what they are currently doing in science in their own classrooms, then attempt to set up some evaluative criteria and use them. Following this they might examine what has been done elsewhere and begin by adapting it to their circumstances, making changes as they proceed, rather than beginning from scratch as though nothing existed that would help them.

Summary

The most effective curriculum construction is taking place where the objectives of science teaching and those of the total elementary school are kept in the foreground. These curricula provide many opportunities for children to learn by doing, to observe, experiment, and use effectively the other ways to discover. They attempt to

help children think more scientifically as they proceed to learn science. Nor do such curricula neglect subject matter. They do not consider memorizing lists of unrelated facts as sensible but they do consider it essential for children to associate ideas into meaningful generalizations—meaningful because they have been learned in context—discovered through important experiments, activities, and printed sources.

No curriculum can be considered successful if it does not take into account innate interests of children in their environment and extend this interest to make it more satisfying. The total possibilities of the various aspects of science subject matter are considered and what happens to the growth and development of children is considered of primary importance.

Curriculum Trends in Elementary Mathematics

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SCHOOL MATHEMATICS, like many other school subjects, has been subjected to a searching study during the past decade. Most of the national attention has been centered on the content of the school program. The basic proposition underlying the reform movements resulting from such studies can be briefly stated. If the schools are to spend a major portion of the school day teaching mathematics, it should be good mathematics. Good mathematics can be defined as mathematics that is of contemporary interest to mathematicians. Within pedagogical limits I can see no reason to quarrel with this position. The position is readily generalizable to other subjects of the curriculum.

The more recent efforts in the foundations of instruction in mathematics

have centered around pedagogical problems of a psychological nature. For example, the work of Piaget is beginning to influence the research efforts in arithmetic. It is becoming very evident that the child's ability to conserve numbers is necessary for success in arithmetic. It has been shown, for instance, that there is a stronger relationship between conservation and problem solving than there is between intelligence and problem solving (1). Of course, here the term problem solving must be interpreted in the arithmetic sense and not in its most general sense.

Once one centers on problem solving as crucial in a mathematics program, it becomes apparent that the communication of ideas is central to any formulation of a modern curriculum. However, the communication problem in the schools has two aspects: learning how to communicate with children about mathematical ideas and learning how to teach children the language used to express mathematical ideas.

Central to these problems is a re-orientation of the schools to the basic purpose and needs of mathematics. The concept of mathematics as a skill subject is all too prevalent even in high circles of research. The central idea of programed learning and of individually prescribed instruction is that arithmetic is a skill subject. For example, a project that has received considerable national attention teaches the culturally deprived four-year-olds that one plus zero equals one as a child's first experience with numbers. From the point of view of communicating ideas, it is hard to imagine anything more horrible. Those who know mathematics contend that mathematics is something more than skills and their reaction to these practices is largely negative as it is to individually prescribed instruction. Who would teach poetry by relying principally on a computer or by using the techniques of in-

dividualized instruction with a class of thirty children? The main thesis is that the heart of mathematics instruction, and mathematics itself, is more akin to poetry than it is to memorization of addition facts or teaching of typing.

In initial instruction, mathematics deals with objects in the physical world and it is concerned with communicating about numerical ideas derived from physical world experiences. Consider the following instance: A child sees a set of three discs and another set of two discs on a table. He recognizes these as instances of the number three and the number two. Someone pushes the three discs so that only one set of discs is observable. The child must learn to symbolize this action of "three joining two" and, at this stage, he says that there are now $2 + 3$ discs on the table.

Following this initial experience, the child should have many experiences with sets of various objects so that he generalizes that the symbol $2 + 3$ applies to the union of any two sets of three objects and two objects regardless of the size, color, shape, or weight of the objects. This is the first step in learning to communicate about the union of two sets and addition. After many experiences the word "addition" recalls for the child the notion of the union of two sets of objects and the symbols for the numerosness of each set and the set formed by the union. Now $3 + 2$ becomes a generalized symbol for the child just as the word *chair* becomes a generalized symbol, that is, the word applies to no specific chair, but to a piece of furniture with some particular characteristics. Eventually the child learns that $3 + 2$ is the same as 5.

From this standpoint it is apparent that arithmetic is concerned with ideas and the communication of ideas. At heart, it is not a skill subject any more than literature is composed of a hier-

archy of spelling skills and word recognition. To say that arithmetic is not a skill subject does not mean that skills are not essential to success. Obviously, one must be able to add to enjoy arithmetic just as one must be able to spell to enjoy good literature.

To achieve a good mathematics program, it is essential that in the initial stages of instruction mathematics be related to the world in which the child lives. There is mounting evidence that the schools have failed to relate mathematics to the world of real things for children. At the Research and Development Center for Cognitive Learning, we have taken a random sample of one hundred children at the end of their first year of arithmetic. After presenting these children with a set of three objects and a set of two objects and then performing the union of these two sets, only 20 percent of the children could respond that in each instance there was the same number of objects on the table. All children knew that $3 + 2 = 5$ and $2 + 3 = 5$. Furthermore the correlation between ability to recognize the invariance of number in these instances and intelligence was very low (.22). Further studies have verified these results. There is a stronger relation between success in problem solving and the recognition of invariance of number than there is between problem solving and intelligence (2).

Mathematics supplies models of physical things for children. This is strongly brought out in the task of teaching children how to solve problems. Consider how children should be taught to symbolize a physical situation ordinarily called a multiplication problem. In particular, let us solve this problem.

Mary wanted to plant five rows of carnations with twenty-six carnations in each row. How many plants would Mary need?

One must suppose that a standardized

method for symbolizing multiplicative situations has been developed. This standard form can be found in the convention that 5×6 can be interpreted as five sets of six objects in each set. The five rows of carnations is interpretable as

$$5 \times 26 = n$$

where the sentence indicates that a standard name for the product 5×26 is needed. Incidentally the child should learn that 5×26 is a good and correct answer but that it is not the usual way to express this product as a final answer.

In this way, the mathematical sentence ($5 \times 26 = n$) becomes a means for expressing an abstraction. It is a model for any situation in which one finds five sets of twenty-six objects. This sentence expresses an idea in much the same way that any well formed sentence written in English expresses an idea. There is merely the difference in symbols used—nothing more.

Once the child has learned how to represent the quantitative aspects of certain physical situations, he begins to study the characteristics, usually called properties, of the operations. For example, through selected experiences, the child learns that 5×6 and 6×5 (five sets of six and six sets of five) are the same number, that is, $6 \times 5 = 5 \times 6$. Since this property holds for any two numbers, the child is faced with a need for a more general symbolism to express the fact that for all numbers the commutative property of multiplication holds. Through a series of steps, developed over a period of years, the sentence $a \times b = b \times a$ expresses the idea that for all replacements of a and b , the above sentence will be true. The child has now arrived at the usual symbolism associated with a very central idea in mathematics, namely, the commutative property of multiplication.

A collection of about a dozen ideas,

such as the commutative property, are central to the understanding of mathematics. These ideas are well within the intellectual capabilities of the elementary school child. A school program which places an emphasis on this collection of properties must be given a "plus" for having entered the twentieth century even though the entry is a little late.

A study of the properties of addition and multiplication is only one of the characteristics of an up-to-date mathematics program. To completely characterize the "new" program would be impossible for various reasons. There are, however, major trends, one of which we have already discussed.

The major ideas of geometry are relatively new for the schools and need some attention in any discussion of what is happening to elementary school arithmetic.

Geometry has long been neglected in the elementary school. This is rather surprising when one considers that the child lives in a world of shapes and sizes and probably notices these more readily than he notices number. Since experience has shown that children love geometric ideas, and because children live in a world of geometry, it would seem imperative for the elementary schools to include geometry in the school program. However, just as in the study of number, we are faced with an emphasis on ideas as opposed to an emphasis on certain routines. Present day geometry is frequently concerned with the naming of various geometric figures. To elevate geometry out of the name category, geometry must become concerned with major mathematical ideas and use names only when needed to better achieve mastery of ideas.

Any revision of the geometry program must consider such ideas as similarity, symmetry, congruence, closed curves, and betweenness. These ideas are all intuitively obvious, easily ac-

cessible to elementary school children, and easily represented by paper folding, paper cutting, drawings, and a most impressive array of other techniques. Most certainly the idea that a triangle with two equal sides has a line of symmetry is of importance to all people with an elementary school education. One can justify it on the basis of utility, mathematical importance, and on general interest. The whole subject of symmetry can be the foundation of an enjoyable experience in mathematics for the elementary school child.

The entrance of a revitalized geometry in the elementary school is, at present, being accompanied by a host of other ideas, the elements of which are all well within the intellectual range of the elementary school child. Time permits only a brief mention of a few of these topics.

1. Research is available to show that children of fifth and sixth grade age know many of the foundational ideas of probability. They can list sample spaces in simple instances and choose between one of two games that will give the better chance of winning. All of this without probability having been studied in the schools. Is there any better guide for curriculum modification than evidence such as this?

2. The ability to visualize a two dimensional drawing of a three dimensional object is basic to many trades and to the intuitive perception of mathematics itself. This skill is in everyday use by children but we find it in very few elementary school curricula. Why not?

3. Simple logical terms are of key importance in mathematics and are used informally by all children. Such terms as *all*, *none*, *some*, *not*, *only if*, *if*, *then*, and a few more are familiar to children. Certainly it would be profitable for children to examine carefully the meaning of such sentences as the following, use them in mathematical

and non-mathematical context, and write another sentence which denies the given sentence.

All triangles are isosceles.

Some rectangles are squares.

John can go out to play only if he cleans his locker.

John can go out to play if he cleans his locker.

I will pick you up, if it rains.

This is, of course, a language lesson. It is a lesson that is seldom, if ever, taught.

4. There are ways to pair sets of numbers that are very useful for the citizen that are seldom touched upon in the elementary school. A time-temperature pairing is only one of several such instances. This idea leads to the study of relations and functions. It might well be used profitably for enriching an elementary school program.

It would be possible to lengthen this list considerably but the point has been made. Insofar as the child is concerned, arithmetic could be revitalized. However, any such reform will encounter some difficulties. Let me list just a few.

1. Standardized tests, by and large, are based on computational arithmetic. At best, they are not broad coverage tests. The schools are "test bound" to such an extent that progress is severely retarded. Most certainly other methods must be found to evaluate an educational program. Some hope seems to be just over the horizon. Techniques of item sampling, recently developed, may lead the schools away from the sole reliance on pupil performance tests to a curriculum performance test.

2. The curriculum is already crowded. How would it be possible to include all of these topics in the time now allocated to arithmetic? The answer, it seems, lies in examining very closely the topics now in the curriculum. There is deadwood in the program as it now stands. There is no need for the emphasis now being

placed on the division combinations in grades three, four, and five. Multiplication is a more fruitful pattern of thought in division situations. Instead of thinking $8 \div 2$, the child might just as well think 2 times what number equals 8. This pattern of thought is mathematically more fundamental and pedagogically feasible. At the Research and Development Center at the University of Wisconsin we have developed a course for the elementary school deleting all mention of division combinations. Teachers' comments and standardized test results involving some three thousand children have all been favorable. This problem must be explored further.

3. There is little or no real reason to introduce multiplication and division of rational numbers (fractions) in the sixth grade. The logical arguments needed to make these operations make sense are too involved for children, the techniques too confusing, and the uses too limited. This work might well be delayed to the junior high school without any serious consequences.

4. Any reform in content must consider the status of the knowledge of the teachers. If the elements of probability, geometry, and logic, are to be introduced into the curriculum, teachers must have some background work in mathematics. This is one of the perennial problems of the elementary school.

When one contemplates the problems of the schools as regards the mathematics curriculum, it becomes apparent that some framework must be developed to assist teachers in evaluating a program. Such a framework has been developed by at least two states. California has published a Strand's Report formulated by an advisory committee on mathematics. Wisconsin has published a Conceptual Framework for Mathematics K-6. Both of these reports place an emphasis on a few major ideas which thread

throughout the entire school mathematics program. While these reports differ slightly, it is not surprising to find that they are in substantial agreement. Both reports list about a dozen ideas that should appear in any good mathematics program. They list such ideas as, sets and numbers, numeration systems, number systems, measurement, geometry, ratio, number theory, probability, logic, and problem solving. Using these ideas as guides, any committee of teachers should be able to arrive at a respectable evaluation of the mathematical content of a program.

Once it has been determined that the ideas are to be found in the program, the problem becomes one of examining the sequence of ideas and their logical and pedagogical arrangement. Such questions as the following must be investigated:

1. Are there plenty of pictures to illustrate the mathematical concepts?
2. Are the lessons developmental in nature or are they "rule stating" lessons?
3. Are the ideas readily teachable to children of the appropriate age?
4. Does the program demand rapid mastery of skills, or does it use a

spiral approach to take full advantage of maturation?

5. Is there an "honest" problem-solving program, or are the children left to their own devices to develop a problem-solving technique?

It is quite evident that the reform of the arithmetic program will be a continuous process over future decades. In fact, the concept of an ever evolving curriculum is not new to school people. Most certainly we can make mathematics more interesting to children if we shift more of the emphasis from routine skills to ideas of mathematical import. The future of the arithmetic program resides in just such a shift in emphasis.

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ORGANIZATION

Overview of the National Picture: Title I

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SINCE THE DRAMATIC LEGISLATION of 1965 which authorized unprecedented amounts of Federal funds for ESEA, Title I, hundreds of school systems have instituted special reading programs for the economically disadvantaged. Most of the schools are using these funds to improve the quality and quantity of reading instruction by adding qualified personnel and by providing in-service training.

Despite valiant efforts to upgrade the educational achievement of disadvantaged pupils, however, there is still scant evidence that the problem is being solved. In fact, pupils in central cities are reportedly falling farther below national averages. A state of *crisis* still exists.

The late President John F. Kennedy once stated: "When written in Chinese, the word 'crisis' is composed of two characters: one represents *danger* and one represents *opportunity*." I hope you will keep this statement in mind as we consider Title I reading projects, for a situation which is potentially dangerous also presents many opportunities. A brief report of the survey undertaken by members of the Department of Education at Case Western Reserve University will be found below.

Research design

Information about six types of reading projects funded by ESEA during 1966-1967 was obtained by structured telephone interviews from 632 school systems throughout the continental United States, except Connecticut

which asked to be omitted. Additional data were gained from a supplemental written form. Results were coded and compiled for computer analysis.

Field visits were made by the survey team to 34 systems chosen on the basis of size, geographical location, number of pupils receiving help in reading through Title I, amount of Title I money allocated to reading, type of program, and the program's unique features. Descriptive data from the field visits were analyzed according to type of program, the project's special ingredients, and positive and negative influences upon the success of these projects. The latter were determined by previous research findings, conferences with three national consultants, and professional knowledge of the survey staff.

Findings

The great bulk of reading programs for the disadvantaged were *remedial* in nature (53.48 percent). These included clinics, remedial classes, and/or corrective classes for pupils whose reading retardation varied from severe to mild. *Combination* programs (29.59 percent) usually involved two or more projects associated with reading but often administered independently. Frequently, they contained a remedial component so that, in effect, at least two-thirds of the reading programs funded by Title I were remedial, in part or entirely. *Developmental* (12.82 percent), *enrichment* (1.58 percent), *in-service education* (1.27 percent), and *special projects* (1.27 per-

cent) made up the remaining categories.

Certain patterns emerged in the operation of these projects. The three most common elements of remedial approaches, for example, were small groups of 10 or less (368 systems), meeting 4 or 5 times a week (301), for periods of 31 minutes or more (277).

Nearly two-thirds of Title I reading programs (416) were planned for pupils in all grades, kindergarten through grade 12. About one-third were directed toward pupils at the elementary level (K-6), and less than five percent were conducted for secondary students (grades 7-12), exclusively.

Of those school systems which could identify the specific amount reserved for reading, thirty (4.75 percent) invested \$500,000 or more, 148 (23.42 percent) expended from \$100,000 to \$499,999, 203 (32.12 percent) allocated from \$25,000 to \$99,999, and 126 (19.94 percent) spent less than \$25,000.

Personnel changes for Title I reading projects were made in approximately 80 percent of the school systems. Generally speaking, professional staff was recruited wherever it could be found, both from within and outside the school district. Systems were about equally divided in their use of teacher-aides or paraprofessionals. More than half of the aides came from the school neighborhoods themselves.

Although most schools considered training important for those who work with disadvantaged children, 75 systems provided no in-service education of any kind. Those which did, offered meetings led by local specialists or university consultants on a limited, infrequent basis. Only 77 systems reported carefully planned in-service work of 15 hours or more throughout the school year.

When innovative aspects of programs were explored, local directors reported in order of frequency: new

materials (515), provision for individual or small group instruction (397), changes in instructional environment (343), and individual diagnostic work (273). Few gave any indication of developing new techniques or materials or of initiating creative projects. Stated as original ideas were: master teacher demonstrations (26), and after-school centers (6).

Any new undertaking, obviously, encounters a number of problems. In this respect, reading projects for disadvantaged youth were no exception. Approximately three-quarters of the survey participants said that obtaining qualified personnel was a critical problem, along with "too many children who needed help." Less serious obstacles were viewed as teacher training, personnel shortage for planning and supervising projects, and delays in obtaining facilities, materials, and equipment.

Interpretation of findings

The preponderance of remedial programs perhaps can be attributed to an assumption that present school offerings will be satisfactory for the great majority of pupils, if past deprivation can be overcome. Nevertheless, some schools recognize that school curricula are ill-adapted to the maturation and previous life-experiences of from one-third to one-half of the student population. They realize that what is needed, therefore, is an educational revolution as fundamental as the social changes of the space age: child need-centered programs supported by well-prepared personnel, reduction of class size, diagnostic teaching procedures, personalized instruction, and quantities of appropriate materials. Tomorrow's curriculum will depend increasingly upon independent learning abilities of students. Reading is the basic tool for such independence.

An encouraging trend noted during the study was the added emphasis

being placed upon programs for young children. Educators appear more committed to a heavier investment in activities which predispose children to learning.

Admittedly, during the early months of Title I, many people were expected to undertake work with the disadvantaged with little or no additional training. Where training was offered, teachers desired help of a more practical nature and often expressed disappointment when meetings were devoted to a "sharing of ignorance." Lack of supervisory counsel handicapped some programs. By contrast, where there were enthusiastic, knowledgeable consultants to work closely with the school staff, in-service programs appeared effective.

Theoretically, every Title I proposal states plans for evaluating the progress of recipients of special services. Practically, however, evaluating the achievement of disadvantaged youth is difficult even under the best circumstances. Although local directors are focusing attention on project objectives, evaluation design, and data collection, assistance is needed in these areas.

Needed changes

Because deprived children are often taught by deprived teachers (teachers who are ill-prepared for working with poverty-pocket children), quality pre-service and in-service programs are essential now and in the future. Studies have shown repeatedly that variables of instruction time and the teachers are more influential than methods or materials in teaching children to read. The task is monumental, but we must recruit, train, support, and retain dedicated and competent personnel to teach disadvantaged boys and girls. Unless we can accomplish this goal, we will insure the inadequate reader continuity in his role of failure throughout his school years.

Lip-service to early intervention and prevention of school failures is not enough. Priority must be given to two directly related steps: 1) the downward extension of public school programs to include three-, four-, and five-year-old children, and 2) instructional improvements in reading in the primary grades. To facilitate the latter, hundreds of additional reading consultants will be needed to work with teachers. Preparation of these consultants will require substantial grants for full-time study at universities which have designed special programs for them.

Hopefully, more resource people will be available to help in the construction, implementation, and evaluation of projects for needy children. The establishment of regional centers should be considered seriously. In addition to their leadership functions, such centers would serve as vital forces to coordinate the efforts of project directors and to conduct research to eliminate and/or overcome the devastating effects of ghetto childhoods.

Based on the results of the Case Reserve Survey of Title I Reading Projects during 1966-1967, we can say without reservation that we must move from where we are in our work with the economically disadvantaged to programs and practices which are dramatically better. Not only does society demand something dramatically better, but educators in general believe that there is more to a learning environment than the presence or absence of appropriate materials. Children learn in a variety of ways, and today's teachers are expected to assess the cognitive learning styles and affective relationships of their pupils in order to provide superior learning settings. Growth toward systematically personalizing instruction represents both an opportunity and a desired outcome in our continuing efforts with the nation's deprived youth.

Overview of Title III Reading Projects

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PACE has its origin in a presidential directive. In 1964 President Johnson created a task force on education and charged it with the responsibility of re-considering the urgent problems of elementary and secondary education, and to recommend possible solutions to these problems. The task force studied the problems and later reported its findings. It recommended two strategies for creating change in education which were influential in federal funding. One strategy recommended that large exemplary demonstrations, or model institutions, be supported and that less emphasis be given to smaller projects. The second recommended strategy stressed the notion of the outside-in approach for bringing agencies and persons outside of education into contact with the schools. The intention here being that newcomers to the educational scene would bring in and foster new ideas. Although the basic strategies were compromised to some extent to make them viable to both the political and educational worlds, the Title III Projects to Advance Creativity in Education were approved and funded.

This report is concerned with an overview of sixty-eight of the planning and operational projects reported in the ERIC publication *Pacesetters in Innovation*, fiscal year 1966. The sixty-eight projects focused either entirely or partially on some aspect of reading instruction. Some effort was made to determine the kind of innovation, the nature of the projects, the nature of project activities, and the overall strength and weakness of the projects.

This report is not an evaluation of the Title III reading programs, but it

is an overview of project activities and impressions of their caliber:

Title III and innovation

The primary purpose for organizing Projects to Advance Creativity in Education was to stimulate innovative practices. The reading projects were characterized both by innovative and traditional practices. Some practices which would be less than innovative in a conventional sense, were considered innovative according to Taba's more broadly conceived definition of innovation. Taba's definition* specifies differences in levels and types of innovation.

First, there are innovations that create an entirely new perspective on curriculum, teaching, learning, or instructional materials and media. These innovations require reconceptualization of content, teaching strategies and learning processes.

A second type of innovation represents implementing of already created models, testing them and adapting them to local conditions, such as trying out a new mathematics curriculum or incorporating a method of discovery learning.

A third type of innovation is that of altering the administrative arrangements, such as installing team teaching, changing the manner of scheduling, or introducing new media. These types of innovations are of little worth unless they are accompanied by appropriate changes.

A fourth type of innovation is extending practices which are not in themselves innovative into areas that have lacked them. This is innovation in a local sense only.

The reading projects in Title III were analyzed to determine the type and levels of innovation. The analysis focused on the types and levels as described by Taba above. In some instances, because of the multiple focus of projects, it was not possible to classify these under each innovative category represented in a proposal. In these instances, the innovativeness of the total program was determined and

*Hilda Taba, "Notes and Working Papers Concerning the Administration of Programs," U.S. Government Printing Office, Washington, D.C., 1967, p. 37.

listed. The approximate number and percentage of different kinds of innovative programs were as follows: twenty-four or thirty-six percent of the programs were entirely new programs which were attempting to create an entirely new perspective on curriculum, teaching, learning, instructional materials, and media. Twenty-three projects or thirty-three percent of the Title III reading projects implemented an already created model or models, testing and adapting them to local conditions. Seventeen projects or twenty-five percent of the total, extended practices (which were not in themselves innovative) into areas that have lacked them. Four projects or six percent of the total made alternatives or altered administrative arrangements such as team teaching or schedule reorganization. It is interesting to note, that according to a broadly conceived notion of innovation, that all the Title III projects were innovative.

What kind of projects?

Following the analysis of the kinds of innovative practices represented in

the Title III reading projects, the proposals were examined to determine the kinds of reading programs and activities described. The major focus of each of the sixty-eight projects was ascertained. The projects were then classified according to the description of the ongoing and proposed activities written by the project authors. In some instances, a number of projects proposed a combination of different kinds of activities. In such cases, the project was listed under the category which appeared to represent its major focus. The nine types of projects, the frequency and percentage of their appearance, are indicated below.

Within each of these nine major types of projects, the practices and activities varied extensively. The above categories reflect the general design and focus of the sixty-eight projects.

Model programs and practices

While analyzing the projects, it was apparent that educators were realistically evaluating school conditions and seeking various solutions to school problems. It was possible to identify

TYPES OF PROJECT

1. *Reading Clinics*—Projects in which the primary focus was on the development of diagnostic and corrective services for students.
2. *Tutorial Projects*—In which students were to be given individual instruction by nonprofessional tutors for the purpose of increased achievement.
3. *Exemplary or Demonstration*—Projects in which program development was related to demonstrating effective curriculum development, effective use of instructional materials and/or effective use of new instructional techniques and media.
4. *Mobile Reading Laboratories*—Projects in which remedial reading and/or teacher in-service programs were to be carried on.
5. *Curriculum Development Projects*—Projects in which reading was only one phase of a project designed to write curriculums.
6. *Survey Projects*—Projects which were organized to assess the educational needs of a community, with reading as part of the total assessment.
7. *Community Projects*—Projects in which the focus of the project was to enlist the aid of community resource persons to supplement school instruction.
8. *In-Service Projects*—Projects in which professional course work was to be provided for teachers, administrators, and laymen.
9. *Enrichment Projects*—Projects in which the major focus of the program was directed toward activities for cultural and

	FREQUENCY OF APPEARANCE	PERCENTAGE OF TOTAL
1. Reading Clinics	12	17.0
2. Tutorial Projects	3	4.4
3. Exemplary or Demonstration	20	29.0
4. Mobile Reading Laboratories	5	7.2
5. Curriculum Development Projects	17	25.0
6. Survey Projects	5	7.2
7. Community Projects	3	4.4
8. In-Service Projects	3	4.4
9. Enrichment Projects	1	1.4

well conceived model programs and practices which may have some impact on educational practice. Some of the more effective model programs and practices were related to special reading clinics and centers, curriculum development, teacher in-service education, tutorial programs, demonstration centers, and mobile reading laboratories.

Reading clinics and centers

The model reading centers planned a variety of programs designed to improve diagnostic, corrective, and developmental reading instruction. One program in West Virginia planned to evaluate experimentally new instructional approaches such as the i.t.a., Words in Color, and Aud X. In Virginia the authors of a project designed a reading center program to 1) provide in-service education, 2) offer diagnostic and corrective work for elementary school students, 3) provide counseling for parents of students, 4) stimulate action research and 5) open the center on Saturdays and during summers for cultural enrichment activities. Another regional reading center in Washington planned a program which called for eight school districts to pool their resources and efforts to upgrade classroom reading instruction and provide in-service training for diagnostic and remedial teachers. In Louisiana a remedial reading center was opened to provide small group and individualized instruction to under-achievers, potential dropouts, and dropouts. An exemplary reading clinic program was initiated in California to train special clinic teachers, demonstrate effective training techniques, and provide specific diagnosis for students. In Indiana a reading center was planned to provide remedial and corrective instruction for students and in-service education for teachers and administrators.

Curriculum development

Curriculum development programs focused on a wide range of activities. One project focused on developing a totally ungraded curriculum to demonstrate the greater flexibility and effectiveness of individual instruction. A project in Missouri was designed to establish a curriculum center and seven satellite centers to improve instruction in mathematics, science, and the language arts. In addition, the authors of the proposal planned to establish a diagnostic reading center and demonstrate the use of new instructional media. A unique coordinated effort in curriculum was planned in Missouri by a four county school system. The project emphasized the planning of advanced placement programs, special education, and a pilot program for individualized reading at the secondary school level. At the elementary level science, mathematics, social studies, and reading were stressed. In Pennsylvania a model school curriculum was to be developed for seventh and eighth grade students. The curriculum was being designed to refine and individualize course offerings so that the various national curriculum projects could be adapted to meet the needs of the intermediate school and to capitalize on its unique facilities. A final curriculum project worth noting is a project in Rhode Island which was designed to convert a Head Start program into a nongraded program for children ages 4-6.

Tutorial projects

Some effort in the Title III reading projects was devoted to tutorial programs. The programs were usually planned as supplements to classroom instruction. One program in Pennsylvania planned to organize traditional library services and tutorial instruction in science, mathematics, reading, and communication skills for junior and senior high school students. This pro-

gram was to be operated during after school hours, weekends, and summers so that the educational facilities and personnel would be better utilized. In Wisconsin, a project was planned to identify students with academic and personal problems so that tutorial and counseling services could be planned. A unique tutorial project in Utah was planned so that a reservoir of unused talent in a university community could be tapped to provide instruction in reading and writing. A second project in Utah was organized to provide tutorial instruction for underachievers in grades four, seven, and ten. This aspect of the Title III Reading Projects represents successful efforts to bring "outsiders" into schools.

Demonstration projects

A major thrust of Title III, as envisioned by the President's task force, was to be the large exemplary demonstration projects, or model institutions. The model institutions were to be prototypes for other institutions to emulate. The demonstration projects in reading provide a variety of model programs. Two exemplary centers established programs to demonstrate the use of the initial teaching alphabet. Seven other projects planned and organized centers to demonstrate different methods of teaching reading. Two projects were implemented to demonstrate individualized reading programs. A project in Delaware was initiated to demonstrate the Basal, Modified Basal, Words in Color, and Programed Reading approaches to beginning reading instruction. In Virginia a project was planned to introduce a nonbasal reading program based on the interests, abilities, and background of students. A demonstration project in Colorado was planned to combine an ungraded reading program with a reading enrichment program. In New York an exemplary center was planned to demonstrate diagnostic and reading

development programs. This center also was to demonstrate effective library services and a creative arts program. An exemplary project was planned in Ohio to demonstrate the effectiveness of a multifaceted approach to developing a reading program. In Michigan a special language arts demonstration center was implemented to establish services in the areas of diagnosis, clinical remediation, speech improvement, and reading instruction.

If the various demonstration centers have the impact for which they were designed, these projects will be among some of the most successful.

Mobile reading laboratories

An aspect of the Title III reading projects which stimulated this reader was not only the introduction of new equipment and techniques but also the versatility demonstrated by many project planners and organizers in using new equipment. The uses planned for the mobile reading laboratories is a good illustration of this versatility. One project in Maine planned to use a mobile reading laboratory in the conventional manner by providing remedial reading instruction for children. Two other projects (South Carolina and Wisconsin) organized projects which were designed to use mobile reading laboratories as remedial reading classrooms and, in addition, planned to use the mobile laboratories as in-service training centers. A final project which used the mobile reading laboratory planned to use it as a center for a variety of supplementary educational services.

Surveys of school related problems

One reaction to the variety of Title III projects developed during the first year of operation was that many programs were planned too hastily. Projects were criticized for being innovative when renovative would have been more appropriate. Regardless of

the strategy developed in many of the projects, authorities from various disciplines recommended that in any project planning, the initial step should be an assessment of what the ongoing program is accomplishing. A number of reading projects in Title III began with this procedure—assessing ongoing activities. In Pennsylvania a project was planned to survey the needs of an entire school district, grades K-12. A project in California, designed to develop screening techniques to identify children with potential reading difficulties, began with a survey of available screening techniques. In New Jersey, a project was planned to survey kindergartens to identify underachievers. A survey to determine specific educational and cultural needs including teacher training needs was organized for seventeen school districts in Indiana.

In-service projects

An essential element in any school program is well organized and implemented in-service programs. In a large number of reading projects in-service education was part of the total project. In about one-half of the projects some form of in-service education was planned. It was planned not only for teachers, but also for administrators and consultants as well. In-service education was included in demonstration, clinic, curriculum, and tutorial projects. In two instances the total focus of projects was in-service education. One project in South Carolina was organized to provide in-service education for elementary teachers in grades four through six. In Illinois a project was designed to provide an in-service program for teachers and administrators at all grade levels.

Strengths and weaknesses of PACE reading projects

As in most educational programs, there were obvious strengths and

weaknesses in the Title III reading projects. Both strengths and weaknesses were often related to specific elements of the projects. Weaknesses were most often found in the stated objectives, needs assessment, evaluation, and project implementation procedures. The strengths of the projects were usually related to community and cooperative efforts, inventive ideas, local level focus, and the forced reexamination of preservice and in-service education programs.

In stating objectives, many proposal authors were very vague. In fact, so vague in some cases that the stated objectives were almost meaningless. Projects were designed to revise curriculum and individualize instruction.

The lack of specific objectives was related to the second weakness which was the failure to assess needs. Very few projects of the sixty-eight attempted to determine educational needs through objective procedures.

One of the most obvious weaknesses was in evaluation. Almost two thirds of the projects failed to develop any plans or procedures for evaluation. Another ten percent of the proposals' evaluative procedures were so general that it was impossible to envision how any meaningful information was going to be gathered.

A final weakness was in the procedures for implementing the projects. In a majority of cases, the personnel responsible for initiating project activities had been identified. However, in about half of the projects, no explanation was provided as to how the project activities were to be initiated. In a number of instances project activities were to begin with in-service education. In these cases very little information was provided concerning the kind or focus of the in-service—short term, long term, reading, or language arts.

One example of the strengths of Title III was the large number of pro-

professionals and paraprofessionals involved in the PACE reading projects. There were approximately sixteen hundred people employed in the projects. These were professionals and non-professionals committed to the success of the projects.

Community efforts among agencies have been spurred by Title III reading projects. Projects have been initiated which have relied on the community to supply a pool of resource persons. This alone, in many cases, has been worth the investment. In addition, projects have brought other professionals into the schools. This not only has enhanced the educational program but it has also created a basis for outsiders to begin to understand the problems of the schools.

Cooperative effort among school districts has been stimulated through Title III reading projects. This has tended to negate parochialism and, in many instances, generate enthusiasm among project participants.

In many instances PACE has stimulated some truly inventive ideas which may bridge the gap between traditional practices and future educational practice.

Another strength of PACE is that it is focusing on educational change at the local level where it belongs. The degree of autonomy that local schools in the United States have is unique among nations. In the past it may have impeded progress. However, there is a dynamic freshness in the Title III reading projects which seems to reflect the effectiveness of the approach through local school systems.

A final and yet a particularly important strength of the Title III reading projects is that they very well might dictate a reexamination of preservice and in-service education. It has been stated that teacher education programs have become increasingly conservative since World War II because administrators and professors have not pro-

gressed. In the reading projects about half have some provisions for in-service education. To some extent these activities seem to suggest that college and university prepared teachers are not adequately prepared in their area. From another viewpoint, it seems possible to suggest that in many instances the colleges have not been able to keep abreast of the demand for specialists in a number of areas.

Conclusion

It is obvious that the Title III reading projects have been a real stimulant to the profession and to the communities and students they serve. There are obvious strengths and weaknesses in the projects. However, the innovations and strengths of the projects far overshadow any weaknesses. It seems possible that the many stimulating and effective programs and practices initiated in Title III may bridge the gap between traditional educational programs and programs of the future.

The State's Role in Improving Reading Instruction: A State Pattern in California

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IN CALIFORNIA the state's responsibility for education has traditionally been that of requiring and providing for a minimum program that may be increased by local effort. The *California Education Code* has made certain curricular requirements which include the teaching of reading in grades 1-8. To assure that these requirements are met, funds have been provided on a basis that assures statewide equalization for the foundation program. Basic textbooks and also a limited number of

supplementary texts have been supplied. District and county boards of education have had the responsibility of preparing courses of study for schools within their jurisdiction. They may always increase requirements and resources beyond the minimum of the state.

During the past two decades, as the population of the state has expanded at a tremendous rate, problems of providing education for the fast growing school enrollment have increased at an equally dizzy pace. Wide diversity among student population, mobility of families, varied educational backgrounds of classroom teachers, and administrators new to the state have all added to the difficulties of organizing, articulating, and financing an adequate program of education. In the crowded classrooms children with special needs could receive little help. It became evident that some of these special groups, such as the gifted, as well as the mentally retarded and physically handicapped, were not being served within the general framework of the state's educational system. In most cases lack of district funds to go beyond the bare minimum of state requirements or lack of trained personnel made it impossible to meet the educational needs of these children.

As urgent demands for help came from educators and from the public, the state legislature became interested in financing special programs. Child care centers or children's centers had been state-financed since the close of World War II. Now special programs were established for the mentally retarded, the physically handicapped, and the gifted. A state financed pilot program for compensatory education in California predated Federal aid for the educationally deprived.

Recognition of reading problem

the late 50's and early 60's Cali-

fornia legislators were becoming increasingly aware of two concerns in education: the importance of effective reading instruction for all children and the importance of the quality of a child's early school experience. They felt impelled by pressures from many sources to take some action that would give all children in the primary grades an opportunity for school success. Consequently, Senator George Miller and Assembly Speaker Jesse Unruh sponsored a bill that eventually was signed into law as the Miller-Unruh Reading Act of 1965.

Description of the Miller-Unruh Reading Act

The purposes and aims of the act are prevention and early correction of reading difficulties, and achievement of high quality education in the public schools of the state. All districts receiving equalization aid may, if they wish, apply to participate in the program offered by the act. This voluntary feature puts responsibility on the district. To carry out the purposes of the act, the law provides means for: employing teachers trained in the teaching of reading, providing incentive to encourage such training, and stimulating the establishment and maintenance of school libraries.

Specifically, funds are provided for special teachers of reading on the basis of one specialist for every 125 children in average daily attendance in grades one, two, and three in a school or a district that wishes to participate in the program. More specialists are allowed if the district results of a state-wide reading test given each May show that there is an educational need. The specialists' salary is funded by the state up to the amount of the average salary of California elementary teachers during the previous year. Two hundred and fifty dollars is added as a bonus for the teacher.

Funds are also provided for scholar-

ships of two hundred and fifty dollars each. Any first, second, or third grade teacher in the state may apply for these. Finally, funds of five hundred dollars per specialist teacher are allowed toward the salaries of full-time qualified librarians working in schools or districts where specialists are hired.

The specialist teacher's role

The specialist teacher is the key to the program. To qualify as a specialist teacher of reading, a certificate is required. This certificate may be granted to a teacher who 1) holds a regular California teaching credential, 2) is nominated by the school district on the basis of a demonstrated proficiency in the teaching of primary grade reading, and 3) passes a state examination that tests knowledge of modern approaches in the teaching of reading and differences in styles of children's learning. Self-nomination is possible, but in this case, a special observation panel must witness evidence of the teacher's ability to instruct in the classroom.

Since the program was initiated a point has been made of the title, *specialist teacher of reading*, rather than a reading specialist. This person is regarded as an exceptionally fine classroom teacher with a somewhat broader knowledge of the subject of reading instruction than the average teacher. He is not, however, regarded as a reading specialist in the sense that Dr. Gray was a reading specialist.

Responsibilities of the specialist teacher are defined by the *California Education Code* and by the *California Administrative Code*. In general, the specialists are to work with all children of grade one in groups of varying sizes to prevent reading difficulties. They are to work with small groups of children in grades two and three to correct difficulties. They must analyze results and assist classroom teach-

ers in various ways through individual and group conferences and meetings.

Because the specialist teachers are the most important elements in the program, districts need to select them thoughtfully. A strong teacher who represents the best type of reading instructor in the schools will be in a position to build and strengthen the entire primary reading program. New teachers coming in will receive the kind of help needed at a crucial time. Teachers already in the district have an opportunity to turn to a competent person for help in determining the needs of pupils, for help in selecting new materials and for help in keeping aware of new developments in the field of reading.

Program requirements

The district that elects to participate in the Miller-Unruh Program, besides nominating specialist teachers, must make application through the office of the county superintendent of schools to the State Department of Education. The application requires a general description of the program that the school intends to provide through the specialist teachers. Wide flexibility is allowed by the law and this encourages each district to plan in terms of its own particular needs. Specifically stated is the fact that no application can be rejected on the basis of the methodology of providing basic reading instruction which the school district selects.

Certain limits are, however, defined by requirements for course content and criteria for approval that were established by the State Board of Education. The required minimum course content includes: 1) attention to the basic skills of word recognition, including phonics, and to comprehension skills; 2) systematic and continuous practice of skills and independent reading; 3) presentation of a wide variety of literature; 4) continuous assessing

of language skills and abilities of pupils; 5) instruction and practice in oral language; and 6) utilization of sensory experiences to provide a store of basic concepts. Criteria for determining approval of the district applications to participate in the program include requirements for keeping individual pupil records, for the evaluation of pupil progress, for the coordination of instruction of the specialist teacher with regular classroom instruction, and for a plan for communicating with parents. In brief, a program that considers all aspects of reading and relates closely to the regular school program is required.

Implementation of the act

A state department coordinating committee involving four bureaus of the department have had responsibility for implementing the act. In developing policies and procedures, emphasis has been continuously upon 1) prevention and early correction, 2) provision for individual learning abilities, 3) the development of the role of the specialist as supplementing the total program, 4) local responsibility, and 5) the importance of cooperative planning.

Local and regional group meetings and conferences have been held for the purposes of explaining the act, for bringing specialist teachers together to develop a sense of direction and purpose, and for providing in-service education in the new approaches to reading instruction.

The Miller-Unruh Program got off to a slow start for several reasons. Final legislative action did not take place until a short time before the fall opening of school. The process needed for certifying teachers was too complicated for haste and the original formula for provision of state funds required more district matching than many districts were financially able to assume. Legislative changes before

lished the average salary base for funding which is currently used.

First year of operation: problems and results

However, during the first year of operation in 1966-67, 53 districts employed 252 specialist teachers and conducted approved programs in the state. Two hundred and thirty-eight scholarship grants were made and a total of 193 courses and workshops were offered in 33 colleges and universities as approved for fulfillment of scholarship requirements.

A major problem in this first year of operation was lack of working space for the specialist. Schools were resourceful in revamping closets, trailers, multipurpose rooms, and all sorts of odd corners. Some schools were fortunate in having acquired reading centers under other programs. In some schools specialists worked in classrooms with the regular teacher.

Another problem was the coordination of the special instruction with the regular classroom instruction. Some districts have been especially inventive and creative in developing and coordinating the program. Larger districts have identified teams of specialists and developed long-range in-service plans, using college personnel for professional assistants and providing opportunities for extension of librarian services. The greatest success has been in those districts, both large and small, in which the administration provided all possible opportunities for district personnel concerned to have adequate time for planning and evaluating progress. Continuous and sustained interest of the administration brings the best results.

Evaluation has proved a difficult problem; one year's experience is a scant time for sufficient proof as to the value of the program. The 53 participating districts have reported test data required by law. The data is based

upon the Stanford Achievement Test which is required by the act and will continue to be accumulated. Unfortunately, the required tests given to children of the first, second, and third grades in May of each spring term have done little to build "esprit de corps" in primary teachers. The tests have, however, succeeded in raising some vital questions and directing attention to the need for appropriate means for assessing the abilities and achievement of young children. The original bill excluded mentally retarded children and educationally handicapped from being tested. Now, attention has been drawn to the fact that many non-English-speaking or nearly non-English-speaking children are incapable of dealing with the standardized tests. Better ways of assessing and dealing with the problem of these children are under study.

The findings resulting from the data of the tests at the end of the first year of operation of the Miller-Urruh Program, through inconclusive, show cause for optimism. The research staff of the State Department has warned that only continuing observation over a longer period of time can give reliable data.

Informal evaluations of a more subjective nature were also made by all districts. Returns from these reported positive gains in attitudes of pupils as shown by increasing interest in reading of books, in attitudes of parents from their expressions of appreciation of help given to their children, and in an increasing awareness of all teachers to reading problems. Significant progress, as shown by individual children's records supplemented by informal tests, tape recordings, and other such measures was also reported by a majority of districts.

Present status and future outlook

At present, in the second year of operation of the Miller-Urruh Program,

224 districts have applied for participation with requests for 950 specialist teachers of reading.

A preliminary survey of estimated participation for the 1968-1969 year shows the possibility of a tripling of the districts now in the program. As the program expands, the progress of the original 53 districts will be followed closely. A variety of in-service activities are projected by the State Department of Education in cooperation with county and district staff. Informational bulletins concerning new methods and materials are to be developed. Reports on effective programs will be prepared and, hopefully, more effective means of evaluation can be developed.

The Miller-Urruh Program is a long way from finding all the answers, but it offers an *opportunity* for the whole school to mobilize its resources in understanding individual reading problems of children and in helping to find successful answers.

The Miller-Urruh Program in many ways can serve as a catalyst for broader action. It touches education at many points:

- The primary child and through him his parents in the districts that participate in the program
- The classroom teacher who decides to become a specialist and also the primary classroom teachers in the district
- The nurse, psychologist, or other resource personnel whose services are available
- The administrator who must take the responsibility for seeing that specialist teachers are nominated and for seeing that programs are initiated with district board approval
- The county superintendent of schools who must approve applications for all districts and administer programs for schools under 50 in average daily attendance

- The college that offers courses for specialists and other teachers interested in adding to their knowledge of reading instruction
- The librarian and the candidate for library training.

In this state supported program, an opportunity is offered to schools in which considerable freedom is allowed for discovering and putting into effect unique and personalized ways of working with young children. It is to be hoped that the results will bring success to many, even beyond those now in school.

A State Legislates Improvement in Reading and the Miller-Unruh Act

J E SPARKS
Beverly Hills Unified School
District

IN THE SPRING of 1968, California is the state of the "Three R's": Reagan, Rafferty, and Reading! In his constant attacks upon higher education, Governor Reagan may so destroy the university system that we won't have to train readers for college preparation. Rafferty, as the current state superintendent of education, makes the teaching of reading by phonics instruction something on a par with motherhood, apple pie, and the American flag—such a black-and-white procedure that will cure all of California's supposed reading ills. State legislators release to the newspapers district-by-district reading test results that cause an uninformed public to compare school systems unfairly.

Even though this particular combination of the "Three R's" creates much political involvement in education, it does serve an important purpose: intensive occupation of an entire

state in the teaching of reading. In spite of its critics, the Miller-Unruh Reading Act of 1965 has certainly caused statewide interest in reading instruction—and this is undoubtedly good for the profession.

The act and its purposes

On July 14, 1965, Governor Edmund Brown signed the Miller-Unruh Reading Act, authored by Senator George Miller and Speaker of the Assembly Jesse Unruh, for special elementary school reading instruction programs.

According to the words of the act, the intent and purpose of the law is "the prevention of reading disabilities and the correction of reading disabilities at the earliest possible time in the educational career of the pupil." The act is directed toward reading success for pupils in the primary grades; and it provides funds for salary payments of reading specialists, for scholarships to develop teaching skill and for salary payments for employment of professional librarians.

Testing

All districts in the state are required to administer a reading test in grades one, two, and three, given in May of each year. The test used is the Stanford Reading Test. Results must be reported to Sacramento.

Specialist teacher

A major feature of the act provides school districts with the opportunity to obtain specialist teachers of reading for the three primary grades. Specialist-reading teachers who participate in the Miller-Unruh programs must hold a certificate, Specialist Teacher in Reading, issued by the State Department of Education. To obtain this certificate, a teacher must do three things: be nominated, pass an examination, and make application for the certificate.

The examination is given about three times each year in test centers

throughout the state. The test, 105 minutes in duration, consists of 130 multiple-choice questions. Content of the test includes such items as grouping practices in the primary grades, methods for teaching beginning reading, linguistics, children's literature, testing and diagnosis, child growth and development, uses and values of keeping records, and research findings.

The Miller-Unruh reading specialist, once assigned, may help the school district in the following ways:

1. Working with primary grade children as individuals or in small groups (1-6 pupils)
2. Diagnosing disabilities
3. Organizing instruction to meet individual needs
4. Helping teachers through demonstrations or individual conferences
5. Conferencing with parents
6. Disseminating current reading research

Funding

Since it is the intent of the legislature that funds and services should go first to those schools with the greatest needs and the least ability to provide for them, the law stipulates that approved applications for state aid will be placed on a priority list. In general, priorities will be based upon the relative financial ability of a district as measured by the assessed valuation per unit of average daily attendance and upon the relative needs for specialists as measured by the scores of pupils in the statewide testing program.

This paper, to this point, has presented factually the content and purposes of the Miller-Unruh Act, simply for the reader's understanding of one state legislature's concern for reading instruction. The remainder of this report furnishes critiques of the act, aimed at an understanding of various implications of the effects of the act upon the state's instructional program.

Critiques of the Miller-Unruh Act

CALIFORNIA is a place of tremendous and rapid population growth rep-

resenting people from many varied backgrounds.

CALIFORNIA is a political unit of widely different geographic areas—large mountain counties of small population in the north, rich agricultural counties in the center, and one vast, heavily populated megalopolis in the South that ranges from Santa Barbara to San Diego.

CALIFORNIA is the home of a governor who was once a Hollywood actor and who still seems to exude the appeal of an actor to a national audience.

CALIFORNIA is a state where the superintendent of education may be openly disliked by his professional peers and at the same time receive approval of the lay public.

CALIFORNIA is the domain of a state legislature that takes personal interest in education but seems to seek no advice from the professional educators.

CALIFORNIA is a state where a teacher may enter a first-grade classroom without ever having had a course in the teaching of reading.

CALIFORNIA is the state whose state reading association has the largest membership of any unit in the International Reading Association—and thus a potential source for help to teachers who are eager for information that will aid them to be better teachers.

Take this amalgam of politics and education, strong personalities and professional educators, northerners and southerners, Hollywood "kooks" and "think-factory" intellectuals, phonics and look-say exponents and you have what is probably the most challenging area in the nation for a teacher! A review of the reactions to the Miller-Unruh Reading Act would reveal that viewpoints are as varied as the groups expressing them

Published test results

In February 1968 an unprecedented disclosure of reading test scores showed that suburban districts gener-

ally outperform rural and urban areas in the state and that San Francisco's suburbs do better than those in other parts of the state.

In the test of first-grade reading, Southern California, with the bulk of the state's students, placed only one district in the top ten (San Marino Unified in Los Angeles County). The other nine were districts in Contra Costa, Marin, San Mateo, and Santa Clara counties—all in the north.

This district-by-district ranking, produced by a state assemblyman and published by the press, naturally resulted in comparisons. But how many newspaper readers can be counted upon to ask the following:

1. What about the exposure of children in middle-class suburban areas to books and culture in the first six years of their lives?
2. What about large class size in some urban areas?
3. What about the cultural disadvantages of ghetto children in Negro and Mexican-American neighborhoods?
4. What about the preservice and in-service training of teachers?

Educators' reactions

As measured by the Stanford Reading Tests, California pupils in grades one, two, and three showed to disadvantage in relation to the publisher's test norms. Results indicated that first graders, on the average, are three months behind national norms. They showed that 90 percent of the state's 1,150+ school districts qualify for state funds to hire specialist teachers of reading and that 77 percent of the districts would qualify for supplementary aid beyond that based on the proportion of their pupils showing need for special help.

The state association of school administrators, after study of the test scores, recommended the following:

1. In evaluating California pupils, a test should be used which closely approximates California curriculum.
2. Since Ginn & Company and Allyn &

Bacon have provided the state with basic readers, the content of those readers should be carefully compared with the test items to determine if we are testing what we are teaching.

3. Since California has a late-starting reading program compared to Midwest and Eastern schools on which the Stanford test was largely standardized, research needs to be done to determine the relationship of timing in the teaching of reading to achievement on the test.

Los Angeles city

The Los Angeles City Unified District, with 43 percent minority population, ranked at the lowest levels in the first-grade test. As a result, the city has been in an uproar, with the press, the public, and Rafferty, all offering easy panaceas.

A spokesman for a group of Los Angeles parents stated, "Armies of illiterates march the corridors of public educational institutions because phonetics are not taught in the elementary schools." Rafferty even said on a television interview, after Los Angeles city results were announced, "Aha! See. I told you so! They haven't been teaching phonics!"

California is going through state adoption procedures this year for reading textbooks. Every one of the books which survived the first elimination is phonics-oriented. Jeanne Chall, in *Learning To Read*, the Carnegie-sponsored study now receiving so much notice, provides Rafferty with even more ammunition about phonics instruction.

Because of the pressures put upon it, Los Angeles City has embarked upon a crash program by spending huge sums on phonics materials for the primary classroom.

College training

California institutions have been notoriously lax in offering training for teachers of reading. One of the largest universities in the world, UCLA, until very recently didn't even offer one course in reading. It has been

possible for a beginning first-grade teacher to enter the field without ever having had any training in the teaching of reading. When all of the twenty-seven studies of beginning reading made by the United States Office of Education revealed that the one variable in all of them was the teacher who apparently made the difference, it would certainly behoove the state of California and the entire nation to concentrate its financial rewards upon the human teacher, with a de-emphasis upon materials and machines as ready answers.

On the plus side, it is now commendable to note that thirty-three California colleges and universities offer a total of 193 courses in reading!

California Reading Association

The California Reading Association, the state council of the International Reading Association, published a position paper in 1967 on reading instruction in the state. This paper stands for a sane approach to the teaching of reading based upon all of the research in the field.

Not yet two years old, the organization has had little impact upon the state. In the years ahead, it hopes to become actively involved in influencing the legislature to establish IRA minimum standards for training reading teachers and specialists. The profession deplores the idea that anyone in the state can now become certified as a reading specialist by passing a 130-item multiple-choice test. Fortunately California is filled with thousands of teachers who care enough about upgrading their own training to enroll in the 193 courses being offered by the colleges.

About 3,000 people attend the annual state conference of the California Reading Association. More than 700 teachers attend the annual conference of the local Orange County Council of

Almost every known reading

specialist with a state reputation is constantly busy on consultant assignments with school districts seeking help. Teachers show they care in the ways in which they seek all of the aid they can get in helping their pupils.

California Teachers Association

In its state publication, the powerful California Teachers Association made statements that reflect much professional maturity:

1. That the public and the profession take a dispassionate look at the problem.
2. That instead of negating some of the test results through some rationalizations, it would be more practical to assume that California teachers cannot, and will not, ever be satisfied with the teaching of reading.
3. That it is questionable logic to lengthen the school day and year, without a careful analysis of the efficiency with which time now available is utilized.
4. That research does not clearly support the method of "phonics" over "look-say" and that instead the method must be adapted to the individual learning style of the pupil.
5. That the teacher must have flexibility in the use of time; he must be free to select methods based on reliable research and adjusted to individual differences; and he must have direct access to meaningful in-service education.

Conclusion

Thus stands the state of reading instruction in California today. It's good, it's bad. It's "phonics," it's "look-say." It's professional involvement, it's public pressure. Most important of all, it's *not* indifference. California is a place for the young-at-heart. If rapid change—even from day to day—is bothersome to a teacher, California is not for him.

It is true that the Miller-Unruh Act has pitted politician against educator, has caused taxpayers to compare school systems, has forced some school districts to inaugurate crash programs, and has undoubtedly influenced a phonics-oriented textbook adoption for this year—but look at the values of

such statewide involvement:

1. The intense interest of everyone in the state in reading instruction.
2. The growth of reading courses offered by colleges.
3. The upgrading of instruction that almost has to result from such extensive focus.
4. The awareness of individual differences and needs in instruction.
5. The monies available to school districts for services they couldn't otherwise afford.
6. The improvements that will undoubtedly occur in upper grades because of the attention given now to the primary grades.

The current controversies brought about by the Miller-Unruh Reading Act may often be frustrating but they have brought total involvement on a statewide basis—and isn't that what Marshall McLuhan says the 20th century is all about?

The State Patterns in Florida

RODNEY SMITH
Florida State Department
of Education

CURRICULUM DEVELOPMENT at the state level in Florida is based on five assumptions:

1. The ideal unit for curriculum development in its specific and detailed aspects is an individual school faculty operating under the leadership of the school principal. This recognizes the fact that no two schools are exactly alike. Since individual schools differ, curriculum adaptations must be made in a particular school and in each classroom within the school.

2. Since many common problems, conditions, and needs exist in any local school system, there are many aspects of curriculum development which can

be worked out most satisfactorily for the local school system as a whole.

3. By taking this one step further, we bring the state into the picture. We recognize that some of these problems, conditions, and needs are common to the entire state and can, therefore, be attacked on a statewide basis. It is, therefore, desirable to have a broad general curriculum framework developed at the state level. Within this framework, local school systems and individual schools are encouraged to develop specific programs most appropriate to their particular situations. When requested, consultative services are provided by the State Department of Education to assist with local development.

4. Changing the curriculum means changing people. Processes used in development of curriculum materials and content should not only provide useful materials but should also provide for professional growth of those engaged in the process. People understand better and tend to support with conviction those decisions they have helped to make.

5. Since the direct administration and supervision of individual schools are local functions, the State Department of Education should work with and through local leadership and should be active in the discovery and development of educational leadership at all levels.

In Florida, the preparation of curriculum guides has been one of the major activities designed and worked at continuously to promote the professional growth of educational personnel throughout the state. This medium has been the chief vehicle through which the problems of curriculum development in Florida have been attacked. During the past two decades over seventy curriculum guides have been published by the State Department of Education, and literally hundreds of oth-

ers have been developed by local school systems.

State-level curriculum guides attempt to identify those problems, conditions, and needs which are common throughout the state and to provide helpful suggestions and recommendations to local schools. Curriculum guides developed for statewide use are not "courses of study" in the usual sense. They are neither detailed nor prescriptive. They are, as the name implies, "guides" rather than directives.

There are, of course, certain minimum standards and regulations relating to curriculum laid down at the state level by state laws and State Board of Education regulations. Within a broad and general framework established at the state level, local schools are expected to develop in specific detail a program of learning experiences—"tailor-made" for their youngsters. Within the more specific framework thus provided at the local school level, individual schools and individual teachers work out the day-by-day learning experiences most appropriate for their youngsters.

Certain machinery has been set up for curriculum development in Florida. At the state level, for example, there is a statewide curriculum committee, established by law, known as the "Florida Courses of Study Committee." This committee formulates immediate and long-range plans for statewide curriculum projects, recommends the preparation of curriculum guides, and recommends instructional materials and resources for state purchase. Members of this committee review and recommend to the State Board of Education curriculum materials designed for statewide use. Suggestions from school and lay people for promoting desirable statewide curriculum programs and practices are channeled through the Courses of Study Committee.

Earlier curriculum guides are usually developed through a series of curriculum workshops held during the summer at the state universities. Teachers, principals, supervisors, superintendents, State Department of Education personnel, college and university staff members, and sometimes lay citizens participated in these workshops. Those who desired it could usually secure college credit for participation in the workshops.

While the bulletin production workshop continues to be utilized to some extent, other procedures have been tried with increasing success in recent years in order to secure a larger degree of participation.

At the present time there are a number of state curriculum guides in the process of development or revision. Literally hundreds of people, including teachers, principals, supervisors, superintendents, college professors, children, and parents are involved throughout the state in various ways in these projects. There is considerable evidence that these statewide curriculum projects have stimulated a great deal of study and curriculum improvement in hundreds of schools throughout the state. There is even more convincing evidence that an impressive number of school personnel have gained fresh insights, formed new concepts, and experienced other aspects of professional growth as a result of participating in this work. There is also much evidence to support the belief that concerns about curriculum improvement originating regularly in individual schools have their impact upon statewide activities. It is therefore a process which works both ways, both "bubbling up" and "trickling down" at the same time.

Conditions in Florida which facilitate statewide curriculum development

1. County Unit System—Only sixty-seven districts in the state, each

with one superintendent and one board of education.

2. One or more instructional supervisors in each county through which the State Department of Education can work.

3. Close working relationships and a high degree of cooperation between the State Department of Education, the Florida Education Association, and the colleges and universities.

4. Well organized, active, and cooperative professional groups, such as the County Superintendents Association, the Departments of Elementary and Secondary School Principals, the Department of Supervisors, the Florida Council for the Social Studies, the Florida Council of Teachers of English, the state mathematics and science groups, the Florida Association for Health, Physical Education, and Recreation, the Florida Council on Elementary Education, the Florida Art Education Association, and the Florida Reading Association.

5. State funds are available to provide at least part of the expenses for statewide curriculum projects.

Problems

Number of new teachers each year. Because of our rapid growth, many new teachers are needed annually in Florida. More than half of them come from other states. New teachers do not understand Florida's program of education and have not participated in the development of Florida curriculum materials. Orientation of new personnel constitutes a major problem. New teachers coming into the state require more copies of Florida's curriculum guides. The number required for new teachers each year quickly eats into and sometimes exhausts the supply.

Difficulty in determining a degree of educational advancement which should be suggested in a state curriculum program. If it is pitched too far

ahead of most of the teachers, it is unrealistic to them and consequently rejected. If it is pitched behind where most of the teachers already are, it is of no help to them. Ideally, a state curriculum guide should be stimulating, challenging, and acceptable to most of the school people.

Time and staff limitations. It is difficult to find time when people from over all the state can get together to plan these projects. However, county superintendents, university officials, and school principals have been extremely cooperative in providing professional leave for their personnel to work on state committees. Considerable effort goes into finding times that will interfere least with local responsibilities. The staff of the State Department of Education is spread too thin to do everything as well as it should be done.

Finances limited. Funds available for research, expenses for committees, consultant fees, materials, duplicating, and printing are never quite adequate.

In spite of our limitations and inadequacies, we are convinced that progress is being made. We have considerable evidence to show that the quality of instruction is improving steadily throughout the state. School superintendents are exerting strong and active leadership in curriculum improvement. The tax-paying public is showing more interest in and giving more support to efforts to improve the quality of education than ever before. The progress that has been made is encouraging. The road ahead is long and hard.

An Exemplary Program in Georgia

ESTELLE U. HOWINGTON
DeKalb County, Georgia,
Schools Reading Center

▲ POPULAR SONG of a few years back

asked, "Have you ever seen a dream walking?" and answered its own question with, "Well, I did." Those of us involved in the DeKalb County, Georgia, reading program feel that we, too, are seeing a dream come true.

A few years ago when our director of instruction, Harold Dennis, was doing graduate work at the University of Georgia, he worked with Ira Aaron and had an opportunity to observe the work done at the University Reading Clinic. After he came to DeKalb County, he and Jim Cherry, our superintendent, became increasingly convinced that a county as large as DeKalb must have a reading clinic of its own to help boys and girls who were having difficulty in reading and to help its teachers learn how to teach children with reading problems. About this time two of the teaching personnel, Robert L. Aaron, an elementary principal, and Estelle Howington, a classroom teacher, expressed an interest in seeing such a facility established in the county and in working with it. These two people were encouraged to go to the University of Georgia to get doctor's degrees in the area of reading, with the understanding that they would serve as director and associate director of the reading clinic for which plans were being made.

Reading clinics attached to public schools are usually devoted exclusively to disabled readers. Reading clinics at colleges and universities are established for the primary purpose of preparing teachers to work effectively with disabled readers. The DeKalb County Reading Clinic has embraced both purposes. Pupils go to the reading clinic for help in improving their skills in reading, and DeKalb teachers go to increase their competency in working with children who have problems in reading.

The DeKalb County Reading Clinic was established in August of 1965 for three main purposes: 1) to take, on-re-

ferral from the schools, any children reading significantly below their potential reading achievement level for diagnostic testing and for working out of plans for remediation; 2) to teach some of the children with more severe reading problems; and 3) to serve as a training and in-service center for teachers in the various aspects of remedial reading. During the fall of 1965 three DeKalb County teachers were trained, under Mr. Aaron's direction, in clinical procedures and techniques; they returned to their respective schools in January to work as full-time remedial reading teachers.

In the spring of 1966 thirty DeKalb County schools qualified under Title I, and the county received a grant of funds in the amount of \$400,000 for the establishment of the Reading Clinic and for the setting up of satellite clinics in the 30 schools qualified under Title I. Space for the Reading Clinic was provided by remodeling the rooms in the basement of the Instructional Services Center formerly used for the library of the old Clarkston High School. By partitioning, six sound-proofed cubicles were provided. Four of these were designed to be used for diagnostic testing and teaching and were equipped with book shelves, chalkboards, and bulletin boards. One room was set up as an observation room with a one-way mirror, making it possible to observe demonstration testing and teaching being done in the fifth room. Closed circuit television was installed to make it possible to observe and supervise testing and teaching by means of monitors installed in the observation room, the sixth cubicle. The clinic was stocked with materials and equipment. Some 10,000 books provided a wide variety of material on varying levels of difficulty.

Satellite reading clinics were set up in each of the 30 schools qualified under Title I. Each of these schools was equipped with a \$3,000 reading

laboratory consisting of such materials as trade books, tape recorders, responders, Polaroid cameras, and a controlled reader. Later six other schools qualified as Title I schools, making a total of thirty-six. Classroom teachers came to the clinic during the summer for a quarter's training in techniques of diagnosis and remediation of difficulties; they then went out to man these satellite clinics.

Perhaps the best way to describe DeKalb's program is in terms of each of its purposes. The first of the stated purposes is "to take, on referral from the schools, any children reading significantly below their potential reading achievement level for diagnostic testing and the working out of plans for remediation." Pupils who are reading significantly below their reading achievement level are identified by classroom teachers, who give their names to the school principal with the request that they be referred to the Reading Clinic. An application form, called an initial diagnostic aid request, is filled out by the school. This form gives the name of the student, his home address, the name of the school, the name of the classroom teacher, the child's grade in school, and whether or not the child has received special remedial help or is being tutored. It describes the nature of the child's reading difficulty. One section of the form asks for information as to the child's school progress in subject matter areas other than reading, his latest achievement test scores, and the results of his most recent intelligence test.

The parents are asked to fill out a home information sheet giving background information on the home situation and their views on the nature of the child's problem. The child is asked to fill out a form indicating his preferences in reading matter and his attitudes toward reading.

Each principal has on file criteria for referral to the reading program.

We ask that children have average intelligence or above; that they have no extreme emotional involvements which are obviously debilitating their reading performances, and that they be reading significantly below their respective grade levels. This means, according to our criteria, from five months to one year below expected grade placement in the first three grades, and roughly two years or more below in upper grades.

When the proper forms have been received at the clinic, a time is set for the child to be brought in for diagnostic testing. The principal is given the child's schedule, and it is his responsibility to notify the parents of the scheduled times and to confirm these appointments with the reading clinic staff.

The coordinator of psychological services for the county goes to the school and gives the child an individual psychological evaluation for the guidance and information of the Reading Clinic staff.

Once the exact nature of the child's reading difficulty has been identified by means of appropriate testing procedures, a plan of remediation is worked out for him. A complete report, giving the findings of the clinic staff and recommendations for working with the child, is sent to the school. The parents are notified that this report has been sent to the principal. They call him for an appointment to discuss the contents of the report.

At this point one of three plans of remediation is chosen: the child with the least severe reading problem will be given additional help by his regular classroom teacher, using the recommendations made by the clinic staff; the moderately handicapped youngster will receive special instruction from a trained remedial teacher at his school individually or in a group composed of five, or fewer than five, pupils; those with the most severe reading handi-

caps will be taught individually at the clinic, averaging ten hours of instruction per school month.

The second of our purposes for the reading clinic is "to teach some of the readers with more severe reading problems." Those readers who are reading three or more years below grade level, or who have problems beyond the competency of the remedial reading teacher in the school, are brought into the clinic for testing, if possible. At the time a diagnosis is made, if results seem to indicate that the child needs to be taught at the clinic, his card is flagged; when a teaching spot opens up, he is given the opportunity to come to the clinic to be taught by one of the staff members, all of whom are reading specialists. Of the four permanent staff members, two have doctor's degrees, one has a master's degree, and one has done work beyond the master's degree—all in the area of reading. As would be expected, many of the children require specialized techniques such as Gillingham-Stillman, Fernald, and Cooper. One value in teaching these children at the clinic is that there is opportunity to introduce the teacher trainees to the severe problems some children have and to the techniques one must use with them.

Our third purpose is to serve as a training and in-service center. The teachers who come to us for training are DeKalb County teachers who have been recommended by the principals. We ask that teachers sent for training be experienced teachers who have a strong background in developmental reading. These receive a nine-weeks practicum in the diagnosing and remediation of reading difficulties, working from 8:00 a.m. to 4:00 p.m. each school day. After a brief period spent in studying background textbook material, teachers begin working with children. They are taught how to deal with children's reading disabilities by

diagnosing and teaching children who have been referred to the clinic, under the close supervision of the clinic staff. Closed circuit television is used to demonstrate proper procedures to the trainees and to enable the supervising clinicians to observe teachers at work. A library of video tapes is being built for use in training teachers, for in-service meetings, and for use with parent-teacher study groups. After each testing or teaching session the teacher meets with her supervising clinician for counseling. At the completion of the nine-weeks training session teachers return to the schools from which they came.

All remedial reading classes are supervised from the reading clinic, with the director making periodic visits to the satellite clinics. The reading clinic staff is always on call for consultation. In-service meetings are held once each quarter.

A follow-up is made of the children who have been diagnosed in the clinic and returned to the classroom for teaching. A questionnaire is sent inquiring into the child's progress and asking if further help is needed. If the recommendations made are not proving effective, the child is reevaluated.

Each summer classes in remedial reading are offered. In these classes children are grouped for instruction by reading level and type of disability. No group is larger than five; a child may even have the advantage of a one-to-one relationship with a teacher. Insofar as possible teachers from the satellite clinics teach these children and are supervised from the reading clinic. Members of the clinic staff continue to diagnose, to do remedial teaching, and to train teachers throughout the summer months.

The first summer was typical. During the summer 30 classes in remedial reading, 15 classes in developmental reading, and 15 classes in remedial mathematics were conducted in the

Title I schools, involving a total of 2,021 children. Five experienced teachers assisted the clinic staff in supervising the classes. One of these resource teachers, as they were called, visited each class daily, to confer with teachers, to recommend materials and techniques for individual pupils, to see that teachers had the materials they needed, and to serve as liaison persons between the reading clinic and the classes in the schools.

A total of 23 teachers studied at the clinic during the summer. Five teachers who were experienced in the field of remedial reading were employed as supervising teachers, and a staff member supervised and coordinated the training program. The training followed the usual pattern, with teachers working with children referred to the clinic. Forty-three children were taught individually at the clinic, and 313 were diagnosed and programs of remediation were structured for them.

Fifty-three DeKalb County Schools now have clinic-trained teachers of remedial reading as staff members. The long-range objective is to place a clinic-trained teacher in charge of a satellite clinic in each school in the system. Plans for the future include enlarging the staff of the reading clinic to provide for more adequate supervision, providing more adequate physical facilities, and studying the feasibility of opening branches of the reading clinic in various sections of the county so that its services can be made available to more children.

In DeKalb County everyone is encouraged to "dream big" and work hard to make his dreams come true. To train enough teachers in the field of remedial reading, and to make help available to every child who needs it in a system with 80,000 pupils is a big, big dream. This is the goal of the DeKalb Reading Clinic, and the staff is working toward achieving it.

A Statewide Study of Reading Programs.

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A STATEWIDE STUDY in the spring of 1966 in Rhode Island was really three studies in one. Part I gathered a history of the 1965-66 fourth grade class as it related to the primary grade reading program. Part II was a status study of reading programs throughout the elementary grades for that year. Part III was a survey of what elementary principals and teachers thought they needed in order to have a good reading program. Each of these studies was complete in itself and produced information that was important to program development at both the state and local levels. This paper includes a discussion of Parts II and III—what the status was in the spring of 1966 and what principals and teachers perceived as their needs—and then goes back to Part I to discuss the history of the fourth grade class.

The questionnaires for all three parts of the study were sent out in one booklet to every elementary school in the state that had a fourth grade. There were 346 public, parochial, and private schools in the state fitting the description. Within a few weeks eighty-five percent of the questionnaires had been returned.

Part II: the status study

During the 1965-66 school year, nearly half of the schools had kindergartens, most of which planned readiness activities for the majority of the class. Only about one-fifth of them gave formal reading instruction to the majority of the class.

A typical program. The largest number of schools entered first graders at five years, eight months. The typical child attended a school that was organized into self-contained classrooms

in which children were grouped by reading ability. He was involved in readiness activities for six or more weeks before beginning a whole-word approach to reading. A single reading series was used for the basic part of his program, but many supplementary readers were available for use as needed.

While in the primary grades, the child used supplementary phonics materials and in the middle grades he was frequently taught a lesson in the study skills. His teacher used records and tapes to teach listening skills. There were kits and other supplementary materials in the school for practicing reading skills.

Signs of change. The typical program sounds fairly traditional, but the survey did reveal a few breaks from tradition. Forty percent of the schools during the year 1965-66 were trying something new in one or more classrooms. One arrangement which became popular was the use of three different basal series of readers for the three ability groups, so that the characteristics of the basal series could be matched with the needs of the learners, and also so that slower groups would not be reading stories they had heard twice before.

Another noticeable change was that classroom barriers were beginning to break down. The most prevalent move was toward within-grade grouping, i.e., teachers at the same grade level exchanged some pupils to achieve better grouping. Many schools were using a Joplin-type plan of cross-grade grouping and a few schools had become completely nongraded.

So, while a majority of schools remained fairly traditional, there were signs that many local educators were searching for better ways to handle individual needs. Unfortunately, none of these changes were set up as organized research projects so that differences could be tested.

School principals have reported that Part II of the questionnaire was particularly valuable in that it acquainted them with alternatives to their present program that the staff had not thought of, so that participating in the survey was somewhat instructional.

Part III: needs in reading program.

Principals and teachers thought that the greatest need was for reading specialists—remedial teachers and consultants. Another need frequently mentioned was teacher education in reading. Several teachers wrote notes on this part of the questionnaire saying that they did not need courses about reading. They wanted courses that taught them specific methods and techniques for teaching the skills and gave them answers to their classroom problems.

Other needs mentioned were as follows: more supplementary materials, smaller classes, more time to teach and to plan, diagnostic testing, and better library facilities. It is obvious that two years ago teachers were looking for help. Many changes have taken place over the last two years and I am sure some improvement in problem areas has been made.

One advantage of the Part 3 survey was that it caused principals and teachers to take a good look at their programs; then the report that followed enabled them to see where they fitted into the statewide picture.

This has been a brief treatment of parts two and three, but those interested in the data can obtain a copy of the report through ERIC Document Reproduction Service.

Part I: history of fourth graders.

Part I was a little different from the rest of the survey. A history of fourth graders was gathered which covered experiences in reading from the time the children entered kindergarten. The twenty items in this part

of the study covered such factors as type of kindergarten, entrance age, extent of readiness activities, approach to reading, grouping practices, materials of instruction, consultant service, library facilities, and community characteristics as they applied to one particular class throughout the state.

Availability of state testing program results. The reason we collected the history of fourth grade students was because fourth grade is one of the grades tested in our state testing program in October of each year. Survey data on the primary grade reading program of these fourth graders were programed into the computer with state testing program scores. We were able to match survey and test data for eighty-two percent of all the public, parochial, and private schools in the state. This sample included scores for 12,695 fourth grade children. The results of this analysis showed which of the twenty factors that were surveyed contributed to reading comprehension at fourth grade level.

Community characteristics affect raw scores. One of the important findings was that reading comprehension raw scores are much more closely related to the levels of income and education in the community than they are to any facet of the school reading program. On the average, children who come from communities where the levels of income and education are high will have above average achievement and vice versa. Removing the effect of intelligence on achievement, however, removed the effects of community characteristics. This finding implies that if you test two groups and find them different, the difference may be due to the amount of money their parents earn or the amount of education they received and not to the kind of program they received in school. Since community characteristics seem to affect both achievement and intelligence, to test differences in school pro-

grams it is necessary to equate groups on intelligence through the use of covariance or some similar process. The deviation from-regression score was used in this study.

Program-effectiveness criteria: The analysis of deviation scores for groups divided on the basis of responses to the twenty survey items revealed that some reading practices are more effective than others. The most effective approach to reading for this class was the whole-word approach with gradual phonics. The fourth grade comprehension scores for schools using the whole-word method exceeded the scores for schools using an intensive phonic approach at the .01 level of significance. That means that there was less than one chance in a hundred that children taught by an intensive phonic approach comprehended as well as children taught by a whole-word method. We also found that when a complete phonics program was added as a supplement to a basic program that stressed comprehension one of the highest averages in this study was produced. On the other hand, the use of phonics workbooks outside the context of a complete phonics program was ineffective. Scores for schools using phonics workbooks were below the average expected for children of equal intelligence.

To draw a distinction here between a complete phonics program and the use of phonics workbooks, a complete phonics program stresses the development of auditory discrimination and perception by including many listening and speaking activities. In contrast, phonics workbooks lend themselves to assignment as seatwork. The way they are used may emphasize visual practice whereas the application of phonics depends upon auditory perception and auditory memory which are not developed in a workbook program.

What the findings seem to say is stress comprehension in the basic part

of the reading program and add a complete phonics program as a supplement. Phonics workbooks alone are no help. At least, this describes the program that seemed to work for the fourth grade class studied.

This finding is very significant in view of the current controversy over the place of phonics in a reading program. The decoding emphasis was shown to be important; but, if students are to understand what they read when they reach the middle grades, then comprehension must be the major goal from the very beginning.

Another significant finding was that schools that provided help for children needing it during school time scored much higher than schools that helped children during recess or before or after school.

A unique finding in the study involved class size. Very few studies have shown any relationship at all between class size and achievement, but in this study thirty-five was definitely the cutoff point for achievement. When classes averaged over thirty-five there was a dramatic and significant drop in reading comprehension scores.

No "basal reader approach." Another finding in this study exploded the theory that there is such a thing as "a basal reader approach." Frequently in the literature we find reference to "the basal reader approach" as though all basal series represent the same approach. Our data give no support to such a theory. We found differences among groups using different basal readers to be significant at the .01 level. In other words, when we grouped together the schools using one basal series and the schools using another basal series, there were great differences in their scores. We can't say that any one series represents them all. Each series is really an approach in itself. Since this class entered first grade in 1962, most of the schools were using one of the fifties' editions,

however, so no evaluation of current editions can be made on the basis of these findings. The important thing to note is that different series can vary greatly in their effectiveness. We also found that schools that had several supplementary readers available scored much higher than schools having only the basal reader.

Implications for research

The findings on the data analysis in this study are useful to us at both state and local levels for planning and program development. But, of far greater usefulness are the implications this study has for the future of reading research on a national scale.

This type of research is not experimentation; it is assessment. One characteristic of assessment is that data are collected after the treatments are over. No random assignment of treatments is possible and, therefore, the findings are not generalizable to other groups. Another is that activities are limited to an evaluation of programs already in operation. It provides no vehicle for testing innovations. Therefore, assessment cannot replace experimentation, but, it can provide a structure within which experimentation can be more meaningfully planned, conducted, and interpreted.

A proposed structure. This proposed structure for research would begin with an assessment to provide base-line data on programs in operation and to divide all schools into cell populations that could be described. For example, all schools that admit first graders at five years, eight months would comprise one cell population. The schools admitting children at five years, nine months would be another cell population, etc. Cell populations could also be set out in factorial arrangements.

A second use for assessment in this structure for research would be to cross-validate the findings of experi-

mentation since these two types of research have different sources of bias or error. In an experiment the teacher may feel he is playing a special role; the students may feel like guinea pigs; the new materials may seem more interesting; the environment may be charged with excitement. These contribute to what is known as the Hawthorne effect and may inflate scores. This is not a problem in assessment. On the other hand, accurate history may be a problem in assessment but it can be easily handled in an experiment. Size may be a problem in an experiment but large assessment studies can be done. They differ in many other ways also and their different methodological strengths and weaknesses make it possible for researchers to supplement and cross validate findings through the use of both types of studies.

A locus for assessment. A logical choice of agency for the conduct of assessment studies would be the State Department of Education. It has the legal basis, the personnel, the knowledge of programs in the state, and the trust of the local administrators necessary to make this type of research meaningful. A sharing of information across state boundaries would shed some light on aspects of the reading program related to achievement.

If we are to find answers to some of our major problems in reading, a whole new structure for research is needed. Assessment can provide that structure.

State Patterns in Wisconsin for Improving Reading Instruction

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WISCONSIN was one of the first states in which the State Department of

Public Instruction set up standards for the certification of remedial reading teachers. About twelve years ago the certification regulations were adopted which made it necessary for a teacher to gain experience and additional course work in reading in order to obtain a remedial reading license.

Although the license was not required by the state in order for a school system to employ someone for remedial reading work, many of the administrators of the larger systems required that this special preparation and license be obtained by a teacher before he could be employed in a remedial reading position. In times of large demand, teachers were permitted, in some places, to complete the required work during their employment.

The requirements during these past years have been minimal, but they have made it possible for schools of education to provide course work and clinic practice for more people than would have taken the work voluntarily. Consequently, special programs for the preparation of reading teachers are now available at the graduate level in the two universities at Madison and Milwaukee, at Marquette University, at eight of the nine state universities, and at about six of the eighteen private colleges in the state. However, not all of the colleges offer graduate work.

The present requirements

The Certification Requirements for a remedial reading license as they are outlined by the Wisconsin State Department of Public Instruction in its *Certification Standards* follow:

f. Remedial Reading. A Wisconsin teacher's license based upon a degree is required. In addition 12 special semester credits must be obtained. Courses in remedial reading and in a remedial reading clinic are required. The remaining credits may be chosen from adolescent literature, children's literature, techniques of improving developmental reading, and techniques of teaching the mentally handicapped. Three years of

teaching experience are a prerequisite to obtaining this license.

The search for improved requirements

At the spring meeting of 1965, the executive board of the Wisconsin State Reading Association appointed three members to an ad hoc certification committee "... to study the certification requirements for a reading teacher in Wisconsin and to develop a proposed program of improved requirements." Theodore Harris, Norman Frenzel and Arthur Schoeller (chairman), were appointed to this committee. In the fall of 1967, Thomas Barrett replaced Harris when the latter moved to Washington.

A close liaison with the IRA Professional Standards and Ethics Committee was established through Dorothy Dietrich, the cochairman of the international committee. At the request of the Wisconsin committee, Harris was a consultant to the larger committee at their November 1967 meeting. As a result, adjustments were made in both certification proposals so that at the present time the IRA proposal and the Wisconsin proposal are very similar. It is hoped that this will strengthen both proposals.

The Wisconsin committee also surveyed the offerings in and opinions about reading courses being offered in the institutions of higher learning in Wisconsin. Teachers of special reading programs were questioned about the procedures and regulations that were needed to establish and operate a remedial reading center to diagnose and treat children with measurable reading disability. These findings were added to information obtained from the sixteen other states which required additional work for granting a special reading license.

The final proposal was completed and presented to the membership meeting of the Wisconsin State Reading Association on April 15, 1967 and it

was accepted in principle. On November 2, 1967 the revised proposal was accepted by the state association and turned over to Schoeller's Certification Study Committee for final refinements and for presentation to the State Department of Public Instruction.

The final report was presented to the Wisconsin Teacher Education and Professional Standards Commission on March 29, 1968. Further discussion will take place and if approved by the T.E.P.S. Commission, the proposal will be presented at a public hearing of concerned parents and citizens. The recommendations of these two groups will be given to William Kahl, the state superintendent, who can decide the ultimate adoption, revision, or denial of this proposal.

The new certification proposal for
reading teachers, specialists,
and supervisors.

A special feature of the proposal is the recommendation that graduates of all teacher education curricula be required to complete a three credit course in reading or its equivalent in order to be certified for teaching.

Another interesting aspect of the proposal is the omission of the word "remedial" from any part of the recommendations. The committee's proposal reflects the opinion of many teachers in the state that the connotation of "remedial" is detrimental to a school program and should not be used.

The proposal for improved certification of reading teachers sets up a three step sequence of advanced course work and direct experience in the field to prepare reading teachers, specialists working as consultants with teachers or as diagnostic specialists, and, finally, full-fledged reading supervisors.

The recommended certification requirements follow:

1. Recommendation for Changing and Improving the Present Require-

ments for the Certification of Remedial Reading Teachers

- a. The present regulations for the certification of a remedial reading teacher should be rescinded.
 - b. The following three step design for the certification of reading teachers, specialists as consultants or clinicians, and supervisors should be adopted and required of persons who wish to be certified for any or all of the positions mentioned above.
2. Special Certification Requirements for the Certification of New Teachers
- a. Each person requesting certification as an elementary, middle school, junior high, secondary, or exceptional teacher must have a three credit course or its equivalent in developmental reading in order to be approved. Some practicum work in reading must also be included in the program.
 - b. Other reading and language arts courses should be available in teacher education curricula for the necessary preparation of teachers of reading in middle schools and in junior and senior high schools.

3. Certification as a Reading Teacher 3

Certification as a Reading Teacher 3 would permit a teacher to serve as a full-time teacher of reading disability cases or as a full-time teacher of corrective or developmental reading with the ability to identify and recognize reading problem cases and to plan appropriate programs for the prevention and/or the correction of these problems.

A certified teacher with three years of teaching experience may be certified as a Reading Teacher 3 upon the satisfactory completion of a

master's degree or its equivalent in advanced courses.

- a. Required:
 - Developmental reading—elementary
 - Developmental reading—secondary
 - Diagnosis and treatment of reading disability
 - Reading clinic practice
 - Seminar in reading
 - b. The remaining requirements to be selected from:
 - Other reading courses and seminars
 - Children's and adolescent literature
 - Learning and human development
 - Visual-motor-perceptual problems
 - Measurement
 - Language arts
 - Curriculum, history, and philosophy of education
 - Exceptional children
 - Guidance and counseling
4. Certification of a Reading Specialist 2 who would serve as a reading consultant or diagnostician depending on the area of concentration selected.
- a. Developmental Reading Specialist 2 (consultant).
 - A Developmental Reading Consultant 2 should be able to work with classroom teachers and reading teachers in surveying the ongoing program and making suggested changes to help carry out the district reading program.
 - The same preparation as the Reading Teacher 3 would be required with the addition of a sixth year program of graduate work including:
 - An advanced course or courses in developmental reading or the psychology of reading
 - Advanced course in the diagno-

sis and remediation of reading and/or learning problems

Curriculum development

Supervision

Semantics or linguistics

Internship with a qualified reading consultant or supervisor at various age levels in a school setting

b. Diagnostic Reading Specialist 2 (reading clinician)

A Diagnostic Reading Clinician 2 would serve in a diagnostic center or clinic and should be able to provide expert diagnosis and programs of remediation for the more complex and severe reading disability cases. This teacher should also be able to assist Reading Teachers 3 who are working with corrective and disability cases.

The same preparation as the Reading Teacher 3 would be required with the addition of a sixth year program of graduate work including:

An advanced course or courses in the diagnosis and remediation of reading and/or learning problems

Advanced course in developmental reading or psychology of reading

Individual testing

Clinic practice in individual testing

Semantics or linguistics

Internship with a qualified reading clinician dealing with various age levels in a clinic setting

5. Certification of a Supervisory Reading Specialist 1 (supervisor). A Reading Supervisor 1 should be able to develop with the staff a system-wide reading philosophy and curriculum based on the varying needs and competencies of individual pupils and teachers as well as to participate in personnel and staff

evaluations, budget recommendations, and policy determinations in cooperation with parents, teachers, other supervisors, and administrators.

The Reading Supervisor 1 would complete the requirements for both the Reading Consultant 2 and the Reading Clinician 2 in a seventh year program leading to a doctor's degree or its equivalent.

- a. Courses required from at least two of the following:
Administration and supervision
Advanced research and statistics
Public relations
Instructional media

- b. The applicant should also provide evidence of leadership ability in previous reading positions. This evidence should include written recommendations from previous employers.

NOTE: A person who does not have three years of classroom experience may be provided with provisional certification for the teaching of reading dependent on his other qualifications, recommendations, and related experiences.

Conclusion

At the present time there is little or no indication as to whether the State Department will accept or reject this proposal. It is hoped that this proposal or a better one will be adopted for use in Wisconsin before the end of 1968 as one measure that can help to improve reading instruction.

The need to improve the certification requirements for teachers of reading is evident in the rapid growth of employment of reading teachers spurred on, especially, by federal support through Elementary and Secondary Education Act projects since 1965. There are few qualified teachers available to fill these positions, and consequently, many unqualified persons

have been accepted thus lowering the status of reading teachers in particular as well as teachers in general. The difficulty of teaching reading adequately to *all* of today's children—disadvantaged, disabled, and impaired—makes it imperative that teachers with special preparation in reading be employed at several levels of competence in most school systems.

These recommendations are in accordance with those of the IRA Professional Standards Committee, although they differ in some of the details. Adopting these recommendations for the state would place Wisconsin's certification at a much higher level than that of most states and somewhat higher than the IRA requirements. The Wisconsin reading teachers believe that this is important if Wisconsin children are to receive the improved instruction and guidance in reading which they deserve. Therefore, the Wisconsin State Reading Association members and many others are hopeful that these new requirements will be adopted by the state of Wisconsin and other states so that the reading and other related learning skills of today's and tomorrow's pupils will be benefited by the improvement of the teachers, specialists, and supervisors in the field of reading.

Organizing an Exemplary Reading Program

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SINCE the fall of 1965 the South-Western City Schools have been involved in organizing exemplary reading programs. We started at the elementary level and have progressed through the entire school system. We

are presently awaiting the adoption of our plans for the senior high school program. The key to success in the establishment of any new program is involvement. In order to get commitment to a program or an idea, the curriculum leaders of a school district must involve in the planning all those people who might be expected to participate in the program. Students, parents, teachers, and administrators must be given careful consideration in the planning of a new program. In addition, careful consideration must be given to reviewing the available literature, talking with consultants, and visiting districts that have innovative programs. These activities do much to prevent one from making the same mistakes that others have made. The staff of the South-Western City Schools have used a number of different techniques to provide for the total involvement of the community.

Staff involvement

The staff involvement most often begins with an evaluation of the present reading program. Teachers are asked to suggest changes, point out strengths and weaknesses, and generally comment on the reading program in their school. The evaluation sessions are followed by general staff meetings to discuss reading and propose changes. Teachers are encouraged to suggest places to be visited and consultants to be considered. The general meetings are followed by individual interviews of all staff members. These interviews include all staff members, such as speech and hearing therapists, the school counselor, the school psychologist, and the school nurse. The reason for these interviews is to assure everyone an opportunity to voice his ideas on changes in the proposed reading project.

Think shop

Think shops are used as a means of getting the most help from consultants

and as a means of having staff members share ideas with the authorities available. In these sessions, special attention should be given to the development of informal meeting procedures which will be conducive to interaction. Specific objectives should be developed for think shops in an attempt to bring about desired results.

The staff meetings and individual interviews before the think shop provide the names of consultants that the staff would like to hear. Consultants and staff members then are arranged in small discussion groups so that varying points of view are represented. This seems to stimulate discussions.

The actual day of the think shop is divided up into several parts. A large general session is attended by all participants where consultants can present ideas and react among themselves, while staff members, for the most part, listen but do not actively participate. Smaller group meetings, with no more than ten members, provide an informal atmosphere conducive to a general give and take of ideas among all those in attendance. At the end of the day, all participants meet once again as a total group and the atmosphere of the small group meetings prevails. At this time, the activities of the day are summarized and the entire proceedings are compiled and distributed to the participants.

Community involvement

Community involvement is started at the grass roots. Parents of children who would be directly affected by the program are invited to become a member of a parents advisory group. This group is given a full description of the proposed program and encouraged to make comments and suggest changes. The initial groups have developed the skeleton of the program and the parent groups are instrumental in filling it out. More groups are encouraged to take part as the program progresses.

The local school IRA, school district PTA Council, and the professional staff's Council of Instruction (representing all schools) are all exposed to the program.

Maintenance of involvement

Once the program begins to function a group is organized which represents a cross section of all who participated in the planning. This advisory council is made up of teachers, administrators, parents, consultants to the program, representatives of local service groups, and a representative of the local non-public school.

The purpose of the advisory council is to serve as a sounding board for the activities and practices of the project. It also serves as a continuous evaluator of the project and as a nucleus for further planning.

This has been a review of some of the planning practices of the South-Western City Schools. Now let us look at some of the results.

Organizing the senior high school program

During the first semester of the present school year, the planning phase for a senior high school program was begun. Implementation of the high school plan will complete the exemplary reading project in our school district with a K through 12 program.

Assumptions

Other than the basic premise that the reading program would be interdisciplinary in scope and multi-faceted in its approach to communication skills, only three assumptions were identified prior to the actual planning process. Simply stated, the assumptions were as follows:

1. Innovation must have a basis in educational needs.
2. Professional teachers have the

potential for developing innovative ideas and programs.

3. Every secondary teacher is *not* a teacher of reading. He is a teacher of subject matter who views reading as a tool for learning.

Frymier supports the first of these assumptions in this statement: "Innovation in the name of experimentation has no place in education today, nor has change for the sake of change. Unless the change grows out of a real concern for improvement, and unless it is studied exhaustively, there is little reason to believe that any significant developments can ever occur, for it is in the process of studying the change that those involved allow themselves to be affected by the facts."^{*}

The second assumption is merely another way of saying that the teacher is the most important variable in education. If a teacher sees the need for a change in his classroom, he can usually bring about that change. Likewise, if teachers see the need for a change in program, given the opportunity, they can find a means of initiating the change. It is true that administrators, supervisors, consultants, and others can help but, in the final analysis, the task is carried out by teachers.

The final assumption is contrary to one usually advocated in secondary reading programs. At the secondary level, every teacher is not a teacher of reading for two very good reasons—training and time. Few high school teachers have had preparation in the teaching of reading, nor do content area teachers have time in the allotted class period to provide reading instruction in addition to the required subject matter. Therefore the secondary teacher is not a teacher of reading, but he is an important part of the reading program. Even though he does not

"teach" reading, he learns about it in order to enhance and facilitate the learning of his students.

Planning

In keeping with the assumptions, the first step in planning the reading program was a determination of the educational needs at the high school level. Data concerning these needs was collected from staff meetings, small group conferences, and consultation with faculty representatives. The needs identified in these sessions were categorized into general areas and submitted to the staff for further discussions.

Professional materials (journals and books) were made available to the faculty and small interest groups were formed from volunteers particularly interested in working on one of the areas of need previously identified. Visits to school systems which had successful programs in the planned areas were arranged. Consultants were utilized by other interest groups.

As planning progressed, some of the planning areas were subsumed under other areas and a plan began to shape. The tentative plan was resubmitted to the faculty and minor revisions were incorporated.

The final plan

Professional growth: focus on process

The result of the total staff involvement in planning a new reading program is not so much a product as it is a process. In fact the major feature of the new program is its focus on a process—in-service education. During the first year of the program the faculty will be engaged in curriculum enrichment through professional study of reading. Organized into departmental task groups, each group will study the relationship of reading to their subject areas. Released time is to be provided during the school day by employment of paraprofessionals who will perform clerical, monitoring, and other routine

^{*}Jack R. Frymier, *The Nature of Educational Method*. Columbus: Charles E. Merrill Books, 1965.

tasks. Activities of the task groups will be coordinated by a reading consultant and research for each group will be conducted by the department head who is provided with additional time for this activity.

Periodically, interdepartmental study groups will meet to integrate the activities of the task groups. Interdisciplinary seminars utilizing authorities from fields other than education will be held regularly.

The plan includes provision for an extensive professional library and a professional study area for the staff.

Communications laboratory

Although the major part of the developmental reading program will result from the departmental study activities, the staff saw a need to provide immediate services for disabled readers, resource personnel in reading, and a well equipped laboratory. These needs were met through a communications laboratory staffed by two teachers and equipped for remedial enrichment and developmental study. At the outset, students will work in the communications lab voluntarily or through referral. Other uses of the lab will be developed by the various task groups and coordinated by the reading consultants.

Learning center

A widespread educational need is the provision of additional learning materials. This need was also expressed at our high school and therefore the plans included an increase in the quantity and variety of materials. Not only books, but also slides, filmstrips, transparencies, tapes, and records will be provided. However, providing these things is not enough, for too often resource materials are stored in closets, offices, or locked rooms. It is essential that resource materials be accessible to students. In order to insure that this be possible,

the high school library will be expanded to a learning center with areas for listening and viewing, leisure reading, independent study, seminar group meetings, and production of teaching aids. The assistant librarian will serve as an audiovisual specialist and a clerical assistant will be included in the learning center staff. An old gymnasium is being remodeled to provide the additional space for this facility.

The program described to you was planned as an ESEA Title III project and will go into operation next year at Grove City High School in Grove City, Ohio. Specific information about procedures, facilities, budget, or other areas is available from the South-Western City Schools, Grove City, Ohio.

Physical Setup and Programs of Suburban Reading League

Member Schools

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WHEN the Suburban Reading League was first organized the monthly meetings were held at a different member school each month. This arrangement offered member teachers the advantage of viewing the physical setup of many reading centers. The first hour of the meeting was devoted to a description of the reading program of the host school by the director of the reading center.

In the first year each school was anxious to make a good impression and so the best points of each program were highlighted. The shortcomings, frustrations, and inadequacies were not mentioned. This attitude has now changed. We know each other better and feel free to discuss the features of our programs that we dislike and ask

our associates for suggestions on how to improve.

The programs described were as varied as the schools visited, but there were the following basic similarities. The reading programs were under the supervision of either the English, guidance, or library departments. One school listed its reading center as a part of the humanities division and only a few had an autonomous reading department. Those programs under the supervision of English departments required reading and assigned a grade and credit for the course; whereas those programs under guidance departments were voluntary and no grade or credit was given. The programs set up through English departments tended to have three different levels of reading classes (the developmental, corrective, and remedial), while those under guidance departments had a larger number of remedial classes. The few under the supervision of library departments were largely individualized programs utilizing programmed or self help materials. These programs were usually geared to the high-average and superior student.

Recruiting students and making them aware of the opportunities in the reading center for self-improvement seemed to plague all the schools. Requiring the course in many schools was not satisfactory because this approach tended to overload the reading centers. Many students who were forced into the requirement neither needed nor desired help. The teachers felt that these students took up the time and space that could have been used to a better advantage by students who wished to improve their reading skills, needed help, and were willing to accept the help of the reading instructor.

Various methods were used to bring the reading center to the students' attention. One school put an article in the school paper explaining the various

services offered by the center and stressed the fact that the center was not just a service for the remedial student, but also offered an abundance of material to the college bound student. Another school listed the course in the school catalog for course descriptions which was distributed to all students at the beginning of each new year. This same school sent notices to the parents of students whose test scores on high school entrance tests indicated that they could use or would need help. Still another school inserted a brain teaser vocabulary test in the school paper with the comment that there is a high correlation between vocabulary and intelligence. A comment was made that most intelligence and college entrance tests have a vocabulary section. The test used was taken from *Words at Work* by Joseph Bellafiore, an AMSCO publication. The correct answers were placed on another page of the newspaper with the information that if the student was embarrassed by the results he could sign up to work on vocabulary in the reading center. This article was placed in the school paper six weeks prior to the ACT and SAT testing dates. This kindled interest in a number of students who were facing the ordeal of college entrance tests. Many signed up to come into the reading center to work at vocabulary and verbal analogies, and remained to work on comprehension and rate.

The basic equipment of the programs was much the same. Since our member schools are suburban, money was made available for adequate materials and the following was standard equipment in most of the centers visited:

Controlled readers, film, and pull down screens

Tape recorders with listen and read tapes

Phonographs for vocabulary records (Jacks and headsets were

available for use with the recorders and phonographs.)

Accelerators, both manual and electric

EDL Skimmer and Scanners

Craig Readers

Overhead projectors

Spinner racks for a display of paperbacks.

Most of the reading centers had individual carrels or booths where a student could work with a minimum of distraction. Many had tables for group work; the effort was to get away from the traditional classroom appearance and approach. One center made a tremendous impression on the visiting reading teachers. Between two reading rooms was a small office with a desk, a typewriter, and a table with three or four chairs. This office had glass partitions affording a view into the rooms and a door to either side. The teacher could work with one or two students in the glassed enclosure at the same time that other students worked and read in the classrooms, yet were able to signal the teacher if they needed assistance.

Floor plans and advice for the physical setup of reading centers are available from Psychotechnics, Educational Development Laboratories, and other commercial organizations. For a diagram of the reading center at Highland Park High School see page 125 of *Helping High School Students Read Better*, published by Science Research Associates.

Two programs

Highland Park High School attempts to reach all freshmen. The students are scheduled by English class. The superior students are scheduled for one week and attend the center instead of their regular English class, during which time they take the Nelson-Denny Reading Test for High Schools and Colleges. Tips and techniques on the mechanics of reading

and how to improve rate, comprehension, and vocabulary are explained. The students are shown the various materials available to them in the reading center. They are then told that they may obtain registration blanks from their counselor or at the reading center. The instructor explains that they may sign up for an individualized program in the second semester during one of their study periods.

The average English class follows the same procedure but the English teacher comes in during the first ten minutes to assign and pick up homework assignments since there is no homework given in developmental reading. The group remains in the center for two weeks. The English teacher usually assigns a novel like *The Yearling* to be read during the two weeks, enabling the students to use some of the techniques they have learned in reading. These students also take the Nelson-Denny reading test and are advised of the results. The English teacher is alerted when students score low in comprehension and these students are advised to take advantage of a course in corrective or developmental reading. Notes informing the parents of these students are sent by the counselor.

Below average English students are not taken from their English classes. English teachers ask the students to supply their schedule of study halls, indicating the study period they would prefer to give up for reading training. Every attempt is made to follow the student's preference. For example, a student may prefer not to give up the hall which follows his math class because he likes to do his homework while the instruction is still fresh in his mind.

Students are scheduled for six weeks, with no more than ten students to a class. The Diagnostic Reading Tests, survey section and the diagnostic tests from Scott, Foresman Tactics

I workbook are administered. The students work on the reading skills in which the tests indicate that improvement is needed. After the required six weeks, students may elect to return to their study hall or may remain in the center to continue to improve their reading. Many students elect to remain and, indeed, how to get rid of some of them has become a problem. We have had to tell these students that they may remain only until the space they occupy is needed by another student. At Highland Park the English teachers are not required to attend with their classes. However, many teachers do attend and some report that they are able to observe their students more objectively in another teaching situation.

At Niles North the freshmen are scheduled for six weeks of developmental reading regardless of level. They attend the center accompanied by their English teacher who is required to attend with her class. The director at Niles North feels that the English teacher can gain the training necessary to continue the program. A book of short stories is used in addition to the regular developmental materials.

No matter what the program, no matter how meager or abundant the materials, it was the warmth and enthusiasm of the instructor that drew the students to the reading center. Those students who found the reading center a pleasant place where they could come and seek help in reading English, in reading history and biology also found that just plain reading for fun came frequently. The reading instructors are dreamers as well as doers and foresee the day when our centers will be thickly carpeted to cut down noise and comfortable chairs for students who wish to read or browse will replace straight rows of desks with student's heads studiously bowed over ink and do" workbook.

Detroit Head Start Revisited

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APPROXIMATELY 400 Head Starters strolled into the kindergartens of the Detroit Public Schools in September 1967. They had received an extensive school exposure in a regular year Head Start Program. Most of them had attended the Head Start classes for at least one year and in some instances, two years as the regular year program enrolls both three and four year olds.

Another 6,300 children entered kindergarten in September 1967 as graduates of an intensive seven-week summer Head Start Program. These Head Start children are to be found in approximately 120 schools located in the inner city of Detroit, Michigan. The brevity of the summer program precludes the in-depth, long range interaction between program and child which is possible in the regular school year. However, evaluations, both subjective and objective, have shown that significant gains on the part of children enrolled in both programs are obtained.

The philosophic bases of the two preschool programs are identical in that they stress the language development approach and are concerned with the growth of the child in all areas—social, emotional, and physical. The Head Start Program concerns itself with discovering the most effective ways of maximizing the growth of preschool children who come from economically and socially disadvantaged neighborhoods. The program emphasizes conceptual development through a multisensory approach. Children are given continuous opportunity to observe and examine the environment which surrounds them, using all their senses.

All individuals move from a purely

motoric reaction to the world about them to one which is basically abstract, dealing in symbols and ideas. This movement is gradual and dependent upon an input of countless numbers of perceptions brought to the mind by the sensory organs. The richer the environment in its opportunities to broaden the range of perceptions, the greater are the expectations of satisfactory conceptual development. A richness of experience is what is often commonly referred to as the "hidden middle-class curriculum."

The preschool classroom structures its curriculum to make certain that children have experiences which lead to conceptual development. Children are taught to observe and generalize; to play with materials which promote thought, such as puzzles and blocks; to expand their ability to verbalize through individualization of instruction and many small group play activities; and to increase their ability to interpret perceptual input through extensive interaction with a variety of sensory stimuli.

The preschool curriculum offers many kinds of experiences which are of great value in moving children along the continuum of learning which began at birth and continues until death. It presents most children with their first opportunity to develop a role in a group situation much larger than that of the home or neighborhood. The socialization experience derived from unpressured preschool activities helps the child to see himself as a participant in the larger world about him. A goal of the preschool is to help the child develop the security of self which will enable him to function effectively with other persons.

A second goal is the development of a strong conceptual base which is necessary if the transition into abstract symbolization is to be meaningful. The more concrete experiences a child has, the more real are the concepts de-

veloped. The preschool classroom must be and is truly a learning laboratory where the child is free to use a variety of materials to help him internalize his learning. Think for a moment of the complex thought processes developed as a child works to build a block house in the corner of the classroom following a literature period during which he heard the story of *The Three Bears*. Think of the concentration necessary to bridge the gap between his inner vision of the house and the block construction before him; the mathematical principles which need to be applied as he picks and chooses the different size blocks needed, and the scientific principles involved in determining the stresses and strains of the rapidly growing structure. Intuitive leaps in knowledge occur as a portion of the building comes tumbling down because it is out of balance. We call this "child's play" but for the child it is a vital, complex, learning experience.

The Detroit preschool program, both winter and summer, is semi-structured in nature. By this we mean that there are planned formal activities in which children participate at a level commensurate to their ability and readiness. We feel that the preschool experience must contribute to the later success of children in their school experience. Therefore, it is necessary that we devote considerable time and effort to helping the children develop basic cognitive skills which are prerequisites to successful intellectual pursuit. Some of these skills are auditory discrimination, visual discrimination, classification, and visual and auditory memory. The extent to which these skills are developed and become functional tools in the repertoire of individual children determines in large measure future academic success. There is much substantiating data for the assertion that school success is closely correlated to the development of these

primary mental abilities. We believe that recent efforts to lower the school level at which formalized instruction in reading and mathematics takes place is misguided and may be considered to be placing the cart before the horse.

It is impossible in a brief program description to explain or even outline all of the facets of our Head Start program. One interesting innovation which should be discussed is to be found in the area of psychological services.

Psychologists on the staff of the Detroit Psychological Clinic have developed, with the cooperation of the Department of Early Childhood Education, a Child Development Profile. The development profile is intended to be a descriptive device upon which a picture of each child's relative strengths and weaknesses can be profiled in terms of demonstrated behavior and compared against a model in terms of "normal" or "average" children their age. It is concerned with the following seven categories: reality orientation, social behavior, language and speech patterns, work habits, temperament, health and physical development, and home.

To determine what the so-called "average" Detroit Head Start child looks like, individual profiles of the entire summer Head Start population of over 6,000 children were obtained in the summer of 1967. These profiles will offer norming data especially useful for comparison purposes, for all of the data were obtained from the local school population instead of from a broader and more diffused student population.

The development profile will become a part of the student's cumulative record file. It will serve two purposes: first, it will offer guidance for program development on an individualized basis; and second, it will serve as an evaluative tool to measure pupil growth and change.

Evaluations of Detroit's two preschool programs have been conducted by the Research and Evaluation Department of the Detroit Public Schools. In addition an outside evaluation of the winter program was conducted by the Head Start Evaluation and Research Center at Michigan State University. The data collected thus far offer considerable evidence that both the long term winter program and the short term summer program are successful in stimulating significant pupil growth.

In one evaluation the Peabody Picture Vocabulary Test was administered to children attending the winter or regular year program and was readministered to one group of children after a six-month period of time had elapsed and to another group following a twelve-month period of instruction. Statistically significant mean gains in vocabulary were made by the pupils in both the six and twelve-month groups. The interesting fact about the gains made is that they were not simple gains which may have been natural and expected due to maturation but rather the gains were significantly above the expected norms mean gains on this test.

In the evaluation conducted by Michigan State University, the Stanford-Binet Intelligence Scale was administered in October and the post-test was given in April. A statistically significant mean gain of 5.89 points on the Stanford-Binet Scale was recorded by the random sample. An even more statistically significant mean gain of 14.86 points on the Caldwell Preschool Inventory was recorded by another random sample of students tested at the same time.

A pilot special language program was designed by the language development specialist and implemented in eight preschool centers. Children in the eight centers were screened and the five children who were functioning

at the lowest level of language efficiency were grouped together twice weekly for language-oriented activity periods during which oral communication facility was developed. Auditory skills were also emphasized during these periods. Materials and language lessons were designed which would meet the needs of the children as indicated by the screening procedure. A manual, *Small Group Language Enrichment Lesson Plans*, was compiled for use with the special language development groupings.

Evaluation of the effect of the small group sessions on the children selected was handled by the Research and Development Department. They found that mean gains in vocabulary made by the children in the pilot project were, in almost all cases, greater after eight weeks than would be expected from six or twelve months attendance at the preschool center without the special help.

During the summer of 1967, several pilot projects were instituted within the Head Start Project to investigate various instructional approaches. During the spring semester, a committee of teachers and supervisors met to consider appropriate instructional techniques to be pursued. A review of the psychological bases of various predictive school readiness tests led the committee to the belief that they could design and suggest curriculum activities which would support and strengthen the basic abilities presumed by the test makers to have fundamental impact on future school success.

The committee decided to center its attention on the Anton Brenner Developmental Gestalt Test of School Readiness. They developed a teacher guide titled *Young Children in School* which listed classroom activities leading to the development of skills in certain specified areas. The areas were auditory discrimination and memory, visual discrimination and memory, quan-

titative thinking, motor control, and tactile experiences. Within each category, a range of skills was presented moving from very simple to extremely complex. A great variety of activities allowed for individual differences as well as growth and maturation.

The rationale developed by the committee upon which the selection of activities was predicated was the following: the child's ability to focus upon the relevant dimensions of his environment is related to his perceptual ability and his level of concept development. He should be able to distinguish a variety of forms. He should be able to discriminate what is important from what is extraneous. Muscle control is important in future reading and writing. School activities demand particular visual, auditory, and kinesthetic perceptual skills which must be developed. If he is to be successful in meeting these demands, the child also needs an adequate background of concepts built on experience. This is the charge and the challenge of Head Start.

Approximately ninety children were placed into experimental classes in five Head Start centers. The teachers of these Head Start classes received in-service training previous to the summer Head Start Project. The Brenner Developmental-Gestalt Test of School Readiness and the Peabody Picture Vocabulary Test were administered to all of the experimental students, and the results for individual students were quickly returned to the teachers. Based upon the diagnosis of student strengths and weaknesses revealed by the test, the teachers selected appropriate learning experiences from the guide, *Young Children in School*.

Post-tests were administered during the concluding seventh week of the summer Head Start. The results were indeed encouraging. Statistically significant gains in the readiness level of the students in three of the five centers

were obtained at the one percent level of confidence. A fringe benefit of great importance was the greater recognition and understanding of the teachers of the need for careful diagnosis of individual needs and that effective classroom programs can be instituted as a result of a diagnostic effort. Teachers indicated that they were more aware of the reasons for doing certain activities and thus were able to make sure that the objectives of the activities were reached. It made them feel like they were functioning at a truly professional level.

The important question now arises, "Where do we go from here?" The preschool program, we believe, has proved its worth beyond a doubt but are we to allow the gains we have seen children make slowly recede until once again the children face schooling with less than even chances of success? The most promising way to maintain the momentum achieved during the Head Start program is through widespread funding of the Head Start Follow Through Project. Head Start Follow Through is funded by the Office of Economic Opportunity and administered by the U. S. Office of Education. It is designed to carry the benefits of Head Start into the primary grades of the school system.

In the 1967-68 Follow Through Project in Detroit, 100 graduates of Head Start are enrolled in Follow Through kindergartens. In these kindergartens the school day is extended to an all day program to provide for the special needs of the children involved. These needs are met specifically through a personally individualized curriculum which is determined through the use of tests, classroom observation, records, and the recommendations of the classroom team. The team consists of the teacher, teacher-aid, psychologists, social worker, volunteer, principal, health coordinator, when appropriate, the project di-

rector, nutritionist, school-community agent, school reading coordinator, and other pertinent personnel. The total team meets approximately three hours every two weeks for the purpose of continuous appraisal and dialogue concerning individual children.

A vital ingredient in both the Head Start and the Head Start Follow Through projects is the direct and continuing involvement of parents in the educational program of their children.

Parent involvement moves concurrently along many lines. Basic to this participation is the fact that specific time during the regular school week is allotted to it. Due to the types of activities planned during this time, there is more interaction between teacher and parent than in most school programs.

Parents designate the nature of the meetings and the topics which meet their needs. The area of nutrition has received a high priority by the parents.

Parental awareness of classroom procedures and objectives is increased. Parents are being given the opportunity of entering into direct learning experience with their own children.

A group of parents meet every two weeks for work and discussions with the project psychologist in the use of perceptual materials at home.

Parents are also involved in direct planning of both projects by representative membership of over 50 percent on the advisory councils.

Although current evaluation procedures reveal that preschool education as carried on at the present time is valuable, much work remains to be done to improve the program. The future presents many challenges to our ingenuity and productiveness. Some of these are

1. We must continue to learn more about what learning is and how it occurs. How may we better motivate children to learn? How

may we better diagnose the readiness of pupils for specific learning and gear our instruction accordingly.

2. We must realize that a child is educated by *all* of his experiences. Therefore, cooperative involvement of professionals, parents, and the community in establishing a total learning environment is needed.
3. We must make certain that every child is challenged to use his abilities to the fullest extent *without* pushing him into frustrations which inhibit learning.
4. We must make certain that the evaluations of programs are not academic exercises but instead that they implant the seeds of change and improvement.

Developmental Reading through the Content Areas: Sewanhaka Central High School District

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NO CHAUVINISM is intended in the statement that the Sewanhaka Central High School District was among the first schools in the country to inaugurate a program of developmental reading at the secondary school level. The purpose of this report is to share our experiences with schools newly embarked on developmental reading programs. We will not report our experimental data. Let it suffice to say that our program produced measurable improvement in pupils' reading ability. We will discuss here some of the problems and pitfalls in administering and supervising a developmental reading program at the secondary level.

Developmental Reading through science and social studies

Some nine years ago, Harold L. Herber, Sewanhaka's first reading supervisor, faced what is still an all too common problem. Our forward-looking district had engaged his services and had backed him with one or more reading specialists in each of our secondary schools. We had a reading staff . . . and we still had reading problems.

One of our larger schools, for example, had 2,800 pupils. For them, the school provided two reading specialists to handle developmental, corrective, and remedial work. Let us consider the proposition that on standardized reading tests which offer both grade level norms and percentile norms, the scale score which corresponds to one year below grade level is also the score corresponding to approximately the thirty-third percentile. Based on these figures, our two reading specialists would have to provide services for one third of 2,800 pupils who were retarded one or more years (on an absolute basis). In addition, our two reading specialists would have to provide developmental and consultative services.

A program and accompanying material was developed which came quite close to making every teacher a teacher of reading. At the junior high level, science and social studies materials were devised to teach developmental reading. Special emphases were placed on those reading skills and techniques occurring in the two content areas. Reading worksheets geared to the course contents were written over the summer by teams of reading specialists and experienced subject matter teachers. These consumable materials were available, on requisition, from a central instructional materials depository.

Subsequent revision of the material produced worksheets providing instruction and exercises based on specific pages in the actual textbooks pupils

used in social studies and science. The teachers received a manual containing all of the worksheets and instructions. Thus, a subject area teacher can requisition class-size quantities to apply reading activities to the actual textbook content, indeed, to the actual textbook pages he is covering.

In-service reading courses formed an intrinsic part of the program. The courses covered concepts of teaching developmental reading in general, and they stressed making effective use of these special materials.

The district's reading specialists served as consultants and demonstration teachers for the content area teachers who were doing the actual teaching of reading.

Program evaluation

Pupils following this program of developmental reading through the content areas did learn to read textbook material more effectively. Pretest versus post-test differences indicated significant superiority for those pupils in the program. And this growth in reading was accomplished without detriment to the pupils' mastery of the subject matter content of the course. Notwithstanding these benefits, the program had some aspects of being an artistic success but a box office failure. Many subject teachers were paying only lip service to teaching reading:

The program did suffer from certain disadvantages. Teachers balked at the need to anticipate and requisition two weeks in advance materials needed. With so many subjects and grades involved in the program, it was easy for some science teachers to leave the teaching of reading to the social studies teachers and for some seventh grade teachers to leave teaching reading to their eighth grade colleagues.

There were two real problems concerning the plan. Problem one resulted from the fact that the program

d for the reading specialists to

spend almost their entire day consulting with subject-area teachers and demonstrating the developmental program. This left very little time for the specialists to do remedial reading.

The second problem had to do with the old saw, "Every teacher is a teacher of reading." We in reading believe in this so wholeheartedly that we have trouble appreciating the fact that nobody else believes in it at all. This attitude is understandable; a man gets himself a master's degree in science to teach science, not reading. Some of our content area teachers remained committed to the reading program only through cajolery, bribes, and hectoring.

The original Sewanhaka Program of Reading in the Content Area now goes into its ninth year. The materials are still available, and many have been revised and kept up to date. A substantial number of content area teachers continue to teach reading skills and the content of their own discipline simultaneously. This program works, and Sewanhaka is developing other reading programs all the time.

Developmental reading through English literature

One major subject in which Sewanhaka originally had no developmental reading program was English. Nevertheless, our English teachers would have answered a query as to whether they taught reading, with a strong affirmative. But by *reading*, English teachers usually mean a concern with literary aesthetics, appreciation, and enjoyment. From the point of view of many English teachers, *reading* skills are something which their students either bring with them from the elementary grades or must be taught in remedial classes. Two circumstances conspired to change this point of view. First, reading and English were now supervised by the same person and department meetings and

well attended in-service courses have proselytized the reading point of view. Second, New York State is bringing out a K-12 experimental language arts syllabus revision which definitely stresses the teaching of reading *per se* in the English classroom. Our district became deeply involved in the experimental syllabus, and many of our English teachers have become "pro-reading."

We introduced our program of developmental reading in English at the seventh grade level where students would be most receptive to it. The program has grown to include grades 7-9 and we expect to extend it through tenth grade in the near future.

Teaching literature through the developmental reading activity

The Directed Reading Activity or DRA (the approach characteristic of almost every elementary level basal reading program) forms the nucleus about which we have developed our Developmental Reading Through English Literature Program. Amazingly, this format was completely unknown to English teachers, except, of course, those who had taken work in the teaching of reading.

Our English teachers had one great concern about the DRA format; they feared any emphasis on reading skills development would lessen their pupils' enjoyment of literature. We sought to convince them that the DRA would furnish the key that would unlock understanding, and through understanding, appreciation could then really develop. The overwhelming majority of our English teachers now appear to be convinced that teaching reading does not interfere with the literature goals they have set for their pupils, but rather helps pupils attain them. In essence, we have finally convinced a small group of teachers—English teachers—that they are indeed teachers of reading.

The lesson material developed for the Reading Through English Literature Program covers a dozen literary selections in great depth. It is not consumable, and pupils do not receive copies, thus eliminating the often expressed teacher objection to requisitioning materials long in advance of actual use. The material is collected in a guide or manual that supplements the teachers' manuals accompanying our literary anthologies. No attempt is made to cover every selection in the anthology. We have said in effect, "Here is how it is done. Teach this dozen selections. If you find the techniques work, go and do likewise for the other selections."

The DRA steps for each selection consist of the following:

- Relating the selection to the students' experiences
- Building backgrounds necessary for understanding the selection
- Vocabulary: testing, teaching
- Establishing a purpose to guide the reading
- Reading the selection silently within clearly defined time limits
- Discussing the selection in terms of the purpose for which it was read
- Presentation of a specific reading skill
- Rereading the selection
- Extension and enrichment activities

This format is hardly revolutionary. What may be new is that our *secondary school* teachers use and like the format and ask that it be extended upward through the senior high school years.

But reading literature is not the same as reading expository material. Several pilot reading programs in the district are exploring the problems of teaching *study-type* reading.

A block program: English, social studies, reading

Pupils in this experimental program take English, social studies, and read-

ing from the same teacher during three consecutive periods. The teacher uses a wide variety of commercially published social studies/reading materials, many of them in kit form. Reading specialists act as consultants and perform demonstration lessons. They also do some remedial work with seriously retarded youngsters during the reading portion of the three-period arrangement.

At the end of a year of experimentation, results are promising and teachers are gratified. For one full period a day, these block teachers are reading teachers and they accept the responsibility.

A team approach: English teachers, reading specialists, and a librarian pool their efforts

In this experimental reading plan, three English classes meet during the same period. A librarian and a reading specialist augment the forces of the English teachers. The chief advantage of this arrangement seems to be the large-group/small-group instructions made possible by the team approach.

**San Diego Unified School
District's Reading
Demonstration Program
for Disadvantaged Youth**

LOTTIE P. HESS and
ROBERT L. HALL
San Diego, California, Unified
School District

MODERN SCHOOL PROGRAMS recognize the importance of reading and are cognizant of the fact that students from backgrounds that are economically limited or culturally different must overcome more difficulties than the average American student if they are to

achieve their reading potential. Therefore it is imperative that society seek innovative and effective ways of teaching these students. Since today's society is a reading society, and the man who cannot read with ease and comprehension faces frustration and frequent failure in his search for economic and social well-being, educators over the country are pouring time, effort, and money into seeking solutions to the pressing problems of teaching disadvantaged children to read.

The San Diego Unified School District's Reading Demonstration Program, located at Memorial Junior High School, is a five-phase program designed to meet the needs of the students at Memorial. More than eight hundred students are involved in the four intensive reading phases of the program, while the fifth phase provides reading specialist assistance to the total school. New materials and motivational and innovative techniques are being tried.

Memorial Junior High School, located in an economically depressed area of San Diego, is one of the oldest junior high schools in the city. The enrollment fluctuates between 1,500 and 1,600 students whose ethnic backgrounds are 58 percent Negro, 34 percent Mexican, 4 percent non-Mexican Caucasian, and 4 percent Oriental and other nonwhites.

The reading program at Memorial was initiated in the spring of 1967 with funds provided by the state of California Senate Bill 28. More than a quarter of a million dollars has been provided to supply the materials, equipment, and personnel needed for the project.

**Objectives of the memorial
junior high reading program**

Evidence from the city schools' testing program clearly indicated that many students attending Memorial Junior High School failed to achieve

their potential in school because of reading achievement scores one or more years below their reading expectancy level. Many efforts had been made to help students improve in reading through a compensatory education program. These efforts were only partially successful, however, due to the extent of reading disabilities and the need for a more complete and comprehensive program. It was felt that only a maximum effort and a multi-dimensional program such as the one described in this report could possibly enable each student to reach the following goals as listed in the initial plans for the project:

- Word-attack skills necessary to decode unfamiliar printed words and to connect them with words in the student's meaning vocabulary
- A basic sight vocabulary of common, frequently used words
- Motivation and reinforcement of a quest for knowledge through reading, as well as joy in reading many types of materials, so that the student not only can read but also does read with satisfaction
- Ability to select important ideas from material read and to organize these ideas for effective use in thinking, speaking, writing, and remembering
- Comprehension skills for understanding relationships among words in phrases, sentences, and paragraphs
- Concepts built around the large number of difficult words and terms that appear in textbooks in all subject areas
- Efficiency in reading, including rate of comprehension, the relation of rate to purpose, and the ability to skim

Project design

The program design of the Reading Demonstration Project at Memorial

Junior High School emphasizes the following:

1. Contact and work with parents
2. Instruction in reading by teachers in content area subjects
3. Intensive reading laboratory experiences for students retarded three or more years in reading
4. Reading centers for use by all students in the reading program
5. An inschool resource teacher to assist other teachers
6. Instruction in English reading for students who are learning English as a second language

More than eight hundred students in Grades 7, 8, and 9 and nineteen teachers are involved in the four intensive phases of the program, with the total school enrollment benefiting from the services of the resource teacher provided by the program.

Phase I: The Parent Involvement Phase of the Program. Parent counseling and instruction is used to increase the motivational forces surrounding the student in this phase of the program. A full-time parent counselor works closely with parents of the students grouped in this phase. Parents meet with reading teachers to become better acquainted with reading materials and equipment used in the project. Some also participate in receiving reading instruction from adult education teachers hired by the program. The parent counselor conducts informal group meetings with the parents in addition to the classes described above. Some parents also serve as community aides, and all receive letters and communications from the school. The students selected for this phase are generally one or more years retarded in reading and their IQ ranges fall between 73 and 88 based largely on group tests. More than 500 students are included in this phase of the program.

Phase II: The Total Immersion Phase of the Program. This group

consists of approximately 40 ninth grade students and approximately 45 seventh grade students. Most of these youngsters are four years retarded in reading and fall in an IQ range of 81 and above. A reading approach is being used in teaching English, social studies, and science to these students. Team teaching is being used in the seventh grade phase of the program.

Many teacher-created materials designed to implement the goals of the reading program through each of the content fields are used. Commercial materials and reading equipment are also available to the teacher when needed and when appropriate to the developmental reading level of the student.

Phase III: The Diagnostic and Corrective Reading Phase of the Program. Students who are generally three or more years retarded in reading and fall at an IQ level of 81 or higher have been grouped into this phase. Extensive use is being made of the reading lab and specialized reading equipment. Instruction depends on the best interests of the individual student. The emphasis in instruction is on the diagnosis of specific reading problems and individualized corrective procedures. Students continue to receive this instruction as long as they can profit from it.

Phase IV: The Total School Involvement Phase of the Program. A full time in-school resource teacher provides assistance to all teachers in the content fields as well as to reading teachers in selecting materials and developing lessons which will improve reading skills. Classroom libraries are provided to classes in many different content areas. In addition the resource teacher conducts in-service training sessions in reading methods and techniques for district teachers.

Phase V: The Reading Instruction for Students who Speak English as a Second Language Phase of the Pro-

gram. Students whose reading retardation is not due to inadequacies in the reading process *per se*, but rather in their inability to communicate in English, receive specialized reading instruction. Three groups provide a reading emphasis program for students enrolled in classes for English as a Second Language. Two groups concentrate on reading for bilingual students not enrolled in English as a Second Language, but whose language concepts need further development in the comprehension of printed material.

Supportive services

In addition to the five phases of the Reading Demonstration Program just described, a number of supportive services are provided for the program. Among them are the following:

Prescriptive diagnostic clinical study

Selected students from the reading classes have been given complete vision, hearing, and psychological test batteries by a team of specialists oriented to reading problems. Included in the study were:

1. Visual acuity. Screening was done for refractive and perceptual problems.
2. Psychometric evaluation. Specific learning skills were diagnosed, including visual memory, auditory memory, and cross dominance.
3. Evaluation of Language Skills.
4. Audio screening.
5. Diagnosis for gross neurological problems.

Group guidance motivational program

Group counseling sessions are provided for students enrolled in reading classes. Community consultants give students constructive images of successful ethnic members and provide motivation. A motivational counselor works with this facet of the program.

Student tutoring program

Demonstration project students were employed to tutor elementary school students in reading during the summer session of 1967. In addition, demonstration program students receive tutorial aid with their own reading problems from intern teachers and teacher assistants, as well as from volunteer high school students.

Parent involvement community aide program

Parents are employed to assist with the program by accompanying students and teachers on field trips and assisting in reading study centers provided by the program as an extended-day service before and after regular school hours.

Field trips and cultural enrichment

Students were taken on numerous field trips to increase their background of experience for reading comprehension. Examples are: A boat trip to hunt for gray whales, a trip to see "Sound of Music," and trips to museums, art galleries, naval installations, and numerous local businesses.

Expansion of in-service programs: teacher interns

Plans have been implemented for a teacher intern program being conducted by demonstration program personnel through the Memorial Junior High Reading Demonstration program. Teachers from other schools in the district are released for a nine week period from their own assignment to participate as interns in the reading demonstration project. These teachers obtain experience with a wide variety of reading problems and training in the use of reading equipment. They return to their own school at the end of the quarter to serve as reading teachers or to work as in-school resource per-

sonnel. This program is financed by the district. Interns aid in all phases of the reading instructional program.

In-service study for teachers

Several in-service education workshops which focus on corrective and developmental reading are being conducted. A three day conference was held for teachers scheduled to work with target area students at Memorial Junior High School this year. Teachers from adjacent schools were included. All day workshops and other in-service activities are scheduled regularly throughout the school year. In addition, courses in reading instruction carrying college credit are offered each semester through the district's in-service training program and San Diego State College Extension Service.

Development of curriculum guides and instructional materials for reading program

The entire summer of 1967 was spent in developing guides, teacher made instructional materials suited to the individual needs of the various student groups, and lesson plans for various phases of the program. A total of more than 400 working hours was devoted to these tasks.

Evaluation plans

Plans for continuous evaluation of the reading demonstration project at Memorial Junior High School were built into the original proposal. A contract for the evaluation of the program was arranged with three members of the faculty of San Diego State College. Prior to the inception of the project, the evaluation committee agreed that the evaluation project would concern itself with the following areas: teacher evaluation of pupil progress and the project itself; administrators' reaction of the total pro-

gram; reactions of parents of students involved in the program; student reactions themselves (that is, what the pupils themselves thought of the program and what they felt was happening to their own reading skills); objective test data; and general recommendations.

The stated objectives of the program design, listed previously, are evaluated through standardized tests. The tests used are the Nelson Reading Test, Forms A & B and the Stanford Achievement Test, Intermediate II, Form W. Related objectives are being evaluated through such instruments and techniques as questionnaires, observations, and interviews. Diagnostic reading tests and informal inventories of reading skills and abilities are also used to determine student needs for reading instruction, and have been given to all classes in the program.

One of the aspects of the evaluation design considered to be extremely important is the continuous nature of the evaluation process. From the project's inception in January 1967, the evaluation committee has been involved. Meetings have been held regularly. Visitations to Memorial Junior High School are made on the same basis. Classes are observed in action by the evaluation team, as well as by other personnel in the district and many outside visitors.

Materials and equipment

The basic philosophy behind the selection of materials and equipment was determined by the needs of the students. Informal diagnostic tests as well as standardized test scores were utilized in an effort to determine which skills the students already possessed and which they needed to learn. Then materials were chosen to begin where the student needed to begin and to teach him the things he did not know. Provision was also made for the suitable reinforcement of existing skills in

order to maintain these skills at a high level of efficiency.

A wide variety of commercial materials were used, primarily of the high interest, low vocabulary selections now more abundant than ever before. Programed materials, workbooks, kits, and easily read stories were all included. A variety of classroom newspapers and magazines as well as between six and seven thousand paperbacks for use in classroom libraries were purchased. Reading levels of the materials selected ranged from first grade level to a few selections at high school level. The majority of the materials selected ranged in reading difficulty from level three through level seven.

Although the majority of the materials purchased would be classified as "software" (i.e., books and printed materials of various kinds), two reading centers were equipped with reading instruments such as two kinds of controlled readers, four kinds of tachistoscopes, reading pacers, carrels for student work, tape recorders, listening posts, record players, and overhead projectors. Some instruments were available for check out to individual classrooms when a period could not be scheduled into the reading center.

Present status of the program

In effect the Reading Demonstration Program is an effort to take the normal staff of a junior high school in a disadvantaged area and through the addition of personnel, materials, equipment, and in-service training programs, attempt to raise the reading level of an entire student body.

One very important facet has been the reduction in the size of instructional groups through the extensive use of teacher assistants in the reading program. Working under the direction of the classroom teacher, teacher assistants conduct small group instruc-

tion sessions with selected students or do individual tutoring as student needs may dictate.

Intern teachers also work with the classroom teacher in the flexible grouping of students for instructional purposes so that frequently our students are receiving instruction in groups of eight to ten students under the direction of a trained adult. This results in more individual attention to each student's needs with consequent lessened frustration on the part of the student. The result is more student involvement in the lesson and better student growth in both attitude and skills.

Statistical evidence is in the process of being compiled by the evaluation team and the district's testing services. Baseline scores for seventh graders were the sixth grade Stanford Achievement Test scores. Eighth and ninth graders were placed in the program on the basis of their most recent score in the district's testing program for schools in the compensatory education program.

Individual student folders record the results of additional tests as they are given and will be subjected to statistical analysis by a member of San Diego State College's evaluation team. The results will then be forwarded to the California State Department of Education as well as to district offices and other interested persons.

Informal checks of student progress seem encouraging at this point. Most classes require the use of more difficult material than was possible for similar classes a year ago. This year's seventh grade total immersion team had matching scores and no student transferred in or out between September 1967 and January 1968. Written diagnostic test results showed the following gains in class range, with all students recording measurable growth:

September 1967—Class Range by Grade Levels 3:20—6:10

January 1968—Class Range by Grade Levels 4:90—7:50

This serves as an example of the changes we feel are occurring with many individual students. In addition, increased student self confidence and participation encourage us, as does heightened teacher morale and increased community encouragement.

Supplementary Education Center

JOHN J. CONNOR, JR.
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Public Schools

IN AUGUST 1966, Worcester submitted a Title III proposal to the Federal Government for a supplementary education center. One of the segments planned for the center was a reading clinic for severely retarded readers in Worcester's public and parochial schools. Worcester has a population of approximately 200,000. There are 30,000 pupils enrolled in our public schools and about 10,000 in our parochial schools. As is expected in a city this size, there are high, average, and low socioeconomic areas. Worcester has 56 public elementary schools, 17 of which are classified as culturally disadvantaged.

Title III grants should be innovative and exemplary. They are not intended to repeat services already in existence but rather to supplement them. Before I explain why we in Worcester felt the need for a reading clinic I must explain the remedial reading program that was in existence and which led to our writing of a proposal for a reading clinic.

Description of present remedial reading program

A remedial reading program has been in existence in the schools since 1946. Criteria for admission to these classes is 9 months retardation for

children in the primary grades and 1½ years on the intermediate level when achievement is compared with capacity. Since the goal of the remedial reading program is to help those students with a bona fide reading disability, all pupils accepted in the remedial reading program have normal or "potentially normal" intellectual abilities. Eight remedial reading teachers teach approximately 100 elementary school children each week for one term. The remedial reading classes are small, usually 6 pupils in a group. The children have 2 or 3 forty-minute periods of instruction weekly. Most of the pupils in the remedial reading classes have made the expected gains and were able to compete successfully in their classrooms. However, a small percentage of the pupils did not show the expected gain. These were the children about whom the remedial reading teachers would say, "I know he would show progress if I only could find the time to teach him alone."

Identification of pupils

A questionnaire was constructed and distributed to the remedial reading teachers in the public schools and to the principals of the parochial schools. In the public schools, the selection of pupils was made by experienced remedial reading teachers who knew their pupils well. In the parochial schools, children were recommended on the basis of principal and teacher consultation. George Spache in his book *Toward Better Reading* (Garrard Press, 1964) feels the seriously retarded reader is one who has had normal opportunities for schooling yet continues to show the same degree of retardation despite corrective efforts which extend over a period of months.

A study of the remedial reading program in the Worcester Public Schools for the last 3 years substantiated the figure of ½ to 1 percent of the total school population who could be classi-

fied as seriously retarded readers because they had not shown progress despite remedial reading help. This group is sometimes referred to by reading educators as the "hard core" remedial readers.

Our identified group of seriously retarded readers seemed to fit the description of Spache. So it was with this group in mind that a proposal for a reading clinic was written. The reading clinic would not duplicate the services of the remedial reading program as it was planned to apply a multidisciplinary attack to the problems of those pupils who did not benefit from the remedial reading program.

Clinic objectives

The goal of the reading clinic as stated were to offer the following:

1. A systematic diagnosis of individuals encountering severe difficulty in reading and related language areas
2. An individualized instructional program for each severely retarded reader who has not responded to small group corrective reading instruction
3. A means of evaluating reading and other types of instructional materials
4. A training ground for classroom teachers

In April 1967, Worcester was granted \$228,000 for a supplementary center. The reading clinic for our seriously retarded readers was one segment of it. The reading clinic is located on the second floor of a school building. It has been completely renovated and now has an observation room, rooms for guidance counselors, clinical psychologists, an optometrist, a library, and instructional areas. Personnel were hired and the clinic was then ready to begin operations. The first goal of the reading clinic was to conduct a diagnostic division. As was mentioned earlier when this proj-

ect was in the planning stage a questionnaire was sent to our remedial reading teachers and to parochial school principals to identify the number of possible candidates whom they would recommend for service from the clinic. A total of 184 referrals were made to the reading clinic. In September the two reading clinic teachers began the screening and diagnosis procedure which was to continue throughout the year. This diagnosis is the starting point for all cases referred to the reading clinic and through it the teachers identify specific needs in reading and make recommendations.

Diagnostic procedures

The diagnosis of a child is performed by the reading clinic staff—teachers, guidance counselor, clinical psychologist—supplemented by other school personnel such as the school nurse. In the diagnosis, four basic areas are investigated:

1. Case history data. The guidance counselor looks into the child's home and school life. He explores the child's attendance and school record. Does he have a history of underachievement or behavioral difficulties? He also has a conference with the child and his classroom teacher.
2. Physical, social, and emotional status. The school nurse is consulted, and health records studied for auditory and visual appraisal. We will add an optometrist to the staff very soon for a more complete appraisal of vision.
3. General capacity level or potential capacity level. The psychologist administers the Wechsler Intelligence Scale for Children to obtain an index of mental ability. She may at times administer the Stanford Binet, the Bender-Visual Motor Gestalt, Kohs Block Test, and Frostig Test of Visual Perception.
4. Present achievement level. This is appraised by the reading clinic teachers in the clinic. They administer a variety of achievement and diagnostic tests depending upon the child. All pupils are administered the Durrell Analysis of Reading Difficulties including spelling and handwriting test, the Gates-MacGinitie Reading Test and the Gates-McKillop Diagnostic Test. Other tests administered are the Lincoln Diagnostic Spelling Test, Gray's Oral Reading Test and the Botel Reading Inventory.

The two reading clinic teachers also meet with the principal, classroom teacher, and former remedial reading teacher in appraising the children. Because the reading clinic can accommodate only a small percentage of pupils in need of help, it is extremely important to select students whose reading difficulties are due largely to problems that can be overcome by a multidisciplinary approach. At this point a conference is held with reading clinic teachers, guidance counselors, psychologist director, and reading consultant to determine which pupils will be accepted for instruction. At this conference a great deal of information is shared.

If a pupil is not accepted for instruction, the reading clinic teacher develops a comprehensive report which includes all test data and recommendations for the classroom teacher.

When reading clinic teachers diagnose referrals they identify the reading problem and specific needs of a pupil and classify the difficulty as being corrective or severely remedial. Then they make one of three recommendations:

1. A good prospect for instruction in the reading clinic.
2. A referral to/or continuation in the remedial reading program at the school with specific suggestions.
3. A recommendation to continue in the classroom with supportive help by the reading consultant to the classroom teacher.

The instructional program

In October 1967, instruction began at the reading clinic for the 16 pupils most severely retarded readers recommended by the remedial reading teachers. As a child is accepted for instruction the reading clinic teachers meet with his parents to explain the program and to acquaint them with their responsibilities to the success of the pro-

gram. The pupils are transported from their home schools to the clinic. In a few instances transportation could not be arranged for some children but their mothers volunteered to drive them, thus indicating the enthusiasm of the parents for the program. The pupils are instructed for 30-40 minutes four times weekly. Sometimes instruction is on a one-to-one basis but often is on a two-to-one basis if there are pupils who have common problems, or if there is a transportation problem.

The instructional program is based on the pupil's needs as determined by the diagnostic program. The teachers in the clinic are quick to point out that the instructional program offered to each child is truly tailored to his specific needs.

At the very beginning of his lessons the pupil is told he must cooperate with his teacher by doing his homework assignments faithfully. This helps him become actively involved in the program to improve his reading. The reading teacher explains to the pupil what his strengths and weaknesses are in terms that he can understand. In this way he is more apt to cooperate in those sessions that may be difficult for him. He receives instruction in his strong areas as well as his weak areas; this helps to create a feeling of success and confidence.

The experienced reading teachers use many methods or adaptations in their instructional programs: linguistic, phonic, basal reader, Spalding, the experience-story approach, and their own eclectic methods. A multisensory approach using auditory, visual, and kinesthetic techniques is used extensively at every session. Dictation exercises are also included in each day's lesson.

During their sessions in the clinic pupils are instructed with a multiplicity of reading materials: linguistic readers, skills workbooks, phonic read-

ers, social studies filmstrips, phrase filmstrips, controlled reader filmstrips, and experience stories typed on a primer typewriter. Pupils make book selections daily from a great variety of popular children's books. They are allowed to take the books home with them and encouraged to read to their parents or younger brothers and sisters.

The reading clinic teachers keep a daily record of the teaching activities, materials used, and degree of success experienced by the child. Each child has a file in which his daily work is kept.

The intrinsic motivation of learning to read is usually the best reward. However, these children who have experienced repeated failures sometimes respond more quickly if some extrinsic motivation is provided. The clinic teachers have devised a reward method whereby their pupils are given a certain amount of tokens for tasks performed well. On Thursday the tokens are exchanged for a reward—usually small candy bars. The system has proved to be very effective with the pupils who eagerly await Thursday to count their tokens to find out what they have earned.

The important point to remember is that there is *no one approach* to remediate these severely retarded readers.

However, the reading teachers have three guiding principles which may be profitably used in many approaches:

1. Assume nothing—for example, we sometimes assume that if a child is in the fourth grade, he must know the alphabet.
2. Teach in micro-units which the pupil can handle easily and then proceed in a structured manner from the simple to the complex.
3. Use a multisensory approach to reinforce the weak memory pattern.

Our reading clinic teachers have attempted to make some general state-

ments as to common disabilities found among their pupils. The most common are as follows:

1. Significant confusion of letter sounds.
2. Severe inability to blend sounds of letters.
3. Extremely poor penmanship.

There are a few children who have shown symptoms of emotional disturbances and they meet with the guidance counselor for individual therapy sessions in the clinic. One boy was referred to the psychiatrist for further help.

Pupils attend the clinic four days weekly. On Friday there is no instruction in the reading clinic. On this day the reading teachers confer with the classroom teachers of the pupils enrolled in the clinic. These meetings have been most helpful in that the classroom teacher is kept alert to materials and techniques used in the clinic. This exchange is important so that the classroom teacher may follow through with instruction and integrate the pupil's instruction at the reading clinic with her reading program. The guidance counselor also meets regularly with the classroom teacher of the child she is counseling. A very basic principle underlying remediation is the need for close cooperation between the clinic remedial program and the regular classroom program, and every effort is made to coordinate these two programs. This day is also used to administer individual tests to prospective candidates as described earlier.

The clinic staff, reading teachers, clinical psychologist, guidance counselor, reading consultant, and director of the education center meet weekly to discuss progress of individual pupils and formulate policy. When the reading clinic can accommodate another child the clinic staff makes a group decision as to which child will enter. Parents are invited to the clinic for meetings conducted by the psycholo-

gist. Discussion is free and centers around practical problems of parents who have children with severe reading disabilities.

The reading clinic has been in operation since October 1967. There have been 26 children from grades 2 to 5 enrolled to date. Of this number 16 have been dismissed from the reading clinic. Children are dismissed from the clinic when the clinic staff feel they are academically and psychologically no longer in need of help. The reading clinic teacher confers with the classroom teacher before the pupil is dismissed and may recommend that the child continue in the school's remedial reading program for a short period. She will then arrange a meeting with the parent of the child to review the child's program.

Progress reports

A comprehensive progress report of the child's program in the reading clinic is sent to his classroom teacher. It contains the following information:

1. General ability test results
2. Silent reading test results—vocabulary and word recognition
3. Comprehension or paragraph reading scores
4. Standardized group spelling test results
5. Sight vocabulary—the number of Dolch Basic Sight Words
6. Phonics inventory (detailed)
7. Materials used as:
 - a. Phonics and linguistic readers
 - b. Filmstrips read
 - c. Tapes used
 - d. Recreatory Books
8. Analysis of oral reading; types of errors made, methods of word attack
9. Disability analysis—visual or auditory defects, speech defects, physical defects and emotional disturbances
10. Observations—strengths and weaknesses
11. Recommendations for the classroom teacher

The reading clinic teachers arrange follow-up conferences with the classroom teacher to see whether or not the child is maintaining the gain he made

in the clinic and to offer supportive help.

Evaluation of new materials

The reading clinic teachers carry on continuous evaluation of materials and sources of materials. One of the present systems the reading teachers are evaluating and which they have found to be significantly helpful with one particularly severe disability reading case is the Harcourt Brace Linguistic Readers. It is felt that these specific readers offer more practice at each level before introducing new material.

Future plans: inservice training

The number of pupils that can be serviced in the reading clinic is of necessity a small percentage of those in need of help. Yet we feel that a classroom teacher can benefit greatly by observing the work of the clinic. So we have made plans for 70 classroom teachers to assist for one week in the reading clinic to give them an opportunity to learn diagnostic and remedial techniques and to become acquainted with many new materials. Teachers will learn to make more extensive use of a multisensory approach in their reading programs and to confidently use a greater variety of materials in their reading classes such as tapes, filmstrips, and programmed and linguistic readers. Two teachers will substitute in the classrooms while the regular teachers are working in the clinic. The in-service training program will be conducted for 35 weeks of the school year. This important service of the clinic will now enable the classroom teacher to improve her skills and techniques in the teaching of reading, thereby strengthening the developmental reading program.

Since the clinic has an observation room with a one-way glass, we have made arrangements with personnel from Worcester State College and Anna Maria College for some students

to visit the clinic to observe and assist the reading teachers. They will also have the opportunity to see the optometrist screen for visual problems. Psychology students from Clark University are invited to observe play the sessions conducted by the clinic psychologist.

In this way we hope to broaden the interest and knowledge of the beginning teacher in the new and broad scope of the reading program today.

Waco Head Start Program

PARA PORTER
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FOR MANY YEARS educators and governmental leaders have realized the importance of early childhood education. Yet, in this decade, there has been a greater manifestation of interest and a more tremendous emphasis on the education of the preschool child than ever before in the history of our nation. With the passage of the Economic Opportunity Act of 1964, opportunities for a new life opened up for many children in Waco, as well as for many other children in the nation.

In Waco there are three separate Head Start Programs. They are sponsored by the Waco Independent School District, the La Vega Independent School District, and the McLennan County Department of Education.

Selection of the pupils

In June 1965, when the Head Start Program was launched, approximately 1,500 Waco children, many frightened, nervous, and perplexed, appeared at one of sixteen designated schools. Approximately forty percent were Negro, thirty percent, Latin American, and thirty percent, white. Because of less financial assistance from the Office of Economic Opportunity, the number of

children in the program has decreased each succeeding year:

From a city of Waco survey made the previous year, it was relatively easy to determine which children were acceptable for the program. Letters were sent to the eligible parents inviting their children to participate in the first Head Start Program. Briefly the letters explained the purposes of Head Start and the benefits the children were expected to receive. Many of the skeptical parents, feeling that outsiders were meddling in their private affairs, did not respond to the letters. In a recruitment to receive the desired number of participants, there were meetings with the parents at designated schools and also home visitations were made. After the first year, it was not necessary to sell the idea of the program to the parents, for they were eager to enroll their children.

Personnel

For each of the three Head Start programs there was a director, an assistant director, a pediatrician, dentists, a home demonstration agent, and two Waco school nurses. Also there were about thirty-one dedicated and enthusiastic teachers, mostly regular first grade Waco school teachers, assisted by about thirty-one teacher aides. Thus there were approximately one teacher and one teacher aide to seventeen pupils. Before the teachers began work, they spent a week in an intensive education session at the University of Texas in Austin, a program sponsored by the Office of Economic Opportunity.

After several talks before high school and civic groups, approximately 325 people volunteered their services. Some women in Regis Retirement Home made dolls, doll clothes, puppets, and many other objects that were used by the children and greatly appreciated. Grandfathers also found ways in which they could help. One day a

group of high school boys presented a musical program for the entertainment of the children. Deeply impressed by the interest of the children, the boys returned several days to assist with the musical and physical activities.

Components of Program

The program contains four major components: health services, including medical examination, sight and hearing test, dental examinations, immunizations; nutritional supplementation, which included two full meals each day; education, with emphasis placed on discovery and experimentation; and parent involvement and social services.

Health services

During the first three weeks each year, each child was given a thorough medical examination and later a dental examination. To hear about the physical condition of their child, the parents were invited to be present for the examination. For those children who needed immediate dental or medical attention, the following types of treatment were given according to their specific needs—treatment for visual difficulties, for heart ailments, for hernias, for defective throat, and for anemia. Glasses were provided, attention was given to hearing, and many were immunized against measles.

Meals and grooming

Each day two meals were served—breakfast and lunch. Meal time offered opportunity for acquiring information about foods and for learning many social skills. For one thing, they learned to wait patiently until all were ready to eat. They learned to speak quietly and pleasantly as they ate. They learned the names of different foods. Soon they were classifying fruits, vegetables, meats, and desserts.

They learned proper utensils to use. One girl could not use her spoon. In fact, she inverted it; consequently, all

of the food dropped off. After someone showed her how to hold the spoon, she did not have eye-hand coordination enough to get the food to her mouth. In her disgust, she threw the spoon against the wall.

After breakfast each morning, there was time provided for grooming. Each child was given a kit which he highly treasured. In the kit were mirror, comb, toothbrush, toothpaste, soap, and emery boards. A few of the children were thrilled hilariously as they saw themselves in a mirror for the first time. After breakfast, they washed their hands, brushed their teeth, and combed their hair. Instructions and demonstrations were given on the proper way to brush teeth, how to care for the hair, and other hygienic principles. The grooming period helped them develop a feeling of worth and dignity.

Educational program

The program, which lasted from 8:00 a.m. till 1:00 p.m., was flexible with opportunities for meeting individual and group needs instantaneously as situations arose. The teachers were alert for opportunities for children to discover and experiment during meaningful situations when the children were involved and curious.

Dramatic play (planned and spontaneous). There was a never ending fascination for the girls as they donned old clothes and glittering jewelry. They played at visiting others and having parties and picnics. In their play they carried on conversations and served refreshments. Thus there were many opportunities for practicing simple courtesies that needed to be learned and reinforced. They learned to say "Thank you," "I'm sorry," "Excuse me," and other useful courteous expressions.

Sometimes, however, they preferred to dress their dolls or puppets and allow them to go visiting, make pur-

chases, go to parties and picnics. They became aware that there were appropriate clothes for certain occasions. They also played at cooking, taking care of the children, and other things necessary in caring for a home.

While the girls were extremely interested in old clothes and jewelry, the boys were interested in trucks, trains, and building blocks. They also made imaginary purchases in the country store area. In their role playing, they became the doctor, dentist, fireman, policeman, and bus driver. Both boys and girls enjoyed dramatizing *The Three Bears* and other stories and nursery rhymes.

Science. At the beginning many displayed an appalling lack of everyday knowledge. Some had grown up within a two block radius of their homes and could not name the most common objects. However, with proper motivation and guidance, they became fascinated by the many wonders of nature. The teachers, realizing that firsthand experiences should precede book learning, provided opportunities for children to make discoveries of the world about them. The teachers aided the children in observing and interpreting things that would otherwise have gone unnoticed.

For instance, on their walks around the neighborhood, the children gathered and learned specific names of flowers, leaves, rocks, and many other common objects. Later, the teacher pointed out details such as the different parts of plants and flowers. Also the children began to notice the difference in the fragrances of the flowers. They also talked about the fruit or nuts some trees produced. They cracked nuts to see the meat inside. Seeds of different kinds stimulated a discussion of how things grow. Daily, the children watched the growth of peas, beans, and corn which they had planted in pots. They delighted to feed birds crumbs

and seeds. They observed ants, wasps, bees, and other insects.

On trips to zoos, farms, and dairies, the teacher called the children's attention to the types of food the animals ate. What a joy the children experienced as they rode horses! Too, they watched intently as a cow was being milked. Also many animals—ducks, rabbits, hamsters, guinea pigs, and other small animals—were brought into the classroom. The children helped with the feeding and care of the animals and plants, and thus their knowledge grew.

Day by day they observed the weather, and as the occasion presented itself, felt dew on the grass, examined hailstones, observed clouds and rain, caught rain water in a bucket and watched it evaporate. On a visit to the lake, they threw pieces of wood on the water and watched them float. The rocks did not float. Some asked, "Why?" and they were given an answer. They saw thermometers and barometers, and experienced the thrill of seeing things through a magnifying glass.

Coordination (outside activity). During a part of every day the students enjoyed physical activity, which provided relaxation and aided in better motor coordination. Some of the activities engaged in were jumping rope, bouncing and catching rubber balls, playing games requiring running, jumping, and leaping. Also they rode tricycles and played with toy wagons and toy trucks. An activity that had ceaseless fascination for the boys, and for some of the girls, was rolling rubber tires. Also the children delighted in playing in sand boxes.

Language development. At first, the shy, timid children were hesitant to talk, even to answer a question which could be answered in one or two words. The teachers, knowing that the children needed to talk, provided frequent and varied opportunities for

them to do so. As the pupils arrived each morning, the teachers greeted them and attempted to engage them in friendly chats. Children were encouraged to greet each other and to talk together about things which interested them. During the breakfast and lunch periods, teachers started conversations which they thought would be interesting to the children. The work play period was another opportunity for conversations. Throughout the day, the pupils were encouraged to talk about their work or play and to ask and answer questions.

The children told of their personal experiences. They engaged in "Show and Tell." They talked about things they saw or heard on various trips. After seeing films and filmstrips they chatted enthusiastically about what they saw and heard and felt. They were overwhelmed with joy as they saw the movie *Snow White and the Seven Dwarfs* at a Waco theater.

With their toy telephones they talked to each other, to the teachers, and carried on imaginary conversations with their mothers or friends. To help the children develop interest in books, stories, and poetry, the teachers provided many attractive and interesting books for the children to look at and handle. Daily the teacher read interesting stories to the children who enjoyed discussing and retelling them. What a joy it was for the children to dress to represent different characters and dramatize stories and nursery rhymes! They listened to records and tape recordings and felt the magic of hearing their conversations on the tape recorder.

Children added many words to their vocabularies as they learned the names of many things as they saw them. From films, filmstrips, and objects which teachers and pupils brought into the room, they learned the meanings of other words. Also from hearing stories read, sometimes with flannel board

pictures representing words in the stories, they learned words. A Sears catalog proved captivating to the children. They spent hours looking at it and discussing what they saw. The catalog aided tremendously in adding to their store of words.

Mathematics. Many opportunities arose daily for the use of numbers and for the development of mathematical concepts. There were opportunities for counting, such as, count the boys, the girls, the chairs, the cookies. Also in games, teachers helped children count the number of times they jumped rope, threw the ball through the hoop, or bounced the ball. They were given instructions to skip or jump three, two, or five times.

After reading such stories as *The Three Little Pigs* or *The Three Bears*, the children drew the three pigs or the three bears. The teacher pointed to the calendar as she told them that "Today is Monday, June 5." There were opportunities for them to see real money and to learn the names of pieces of money.

Mathematical concepts were developed through weighing the children, telling them how much they weighed, and comparing their weights with others. Also, the children were measured and were told their height in feet and inches. Charts were kept comparing their gains. Children handled rulers and yardsticks.

As children drank a soft drink, mention was made that the bottle held six or ten ounces. Opportunities arose for the children to see and handle food or drink in pint, quart, or gallon containers. As children ate, teachers took advantage of opportunities to mention fractions such as one-half of an apple, or one-fourth of a pie.

There were opportunities to help children develop concepts of geometrical shapes as they played with building blocks. Some of them learned to call the shapes by name: square, rectan-

gle, circle, cylinder, triangle, or tetrahedron.

Children enjoyed watching the hands move on clocks and watches, and teachers would call attention to the location of the hands of the clock at eight o'clock "when we come to school" or twelve o'clock, "lunch time."

As they played with toys and compared objects, children gained understanding of mathematical terms such as *big* and *little*, *high* and *low*, *late* and *early*, *first* and *last*, *longer than* and *shorter than*, and many others.

Teachers found opportunities to talk about sets: sets of dishes, of dominoes, of blocks. Comparisons were sometimes made between sets: counting the cookies and the children to see if there were enough cookies for each child to have one.

The teachers helped the children learn to recognize the numerals and pointed out the numerals on a number line.

Social studies. For eight weeks the youngsters were encouraged to learn to work and play with others and to develop a positive and friendly attitude toward people outside their immediate families. Many learned for the first time that people outside their homes were interested in them and cared for them. They experienced kindness, recognition, and acceptance by others. One way teachers aided children in the development of social skills was to encourage them to choose partners for walks, for play and games, and for many other activities.

Children were helped to share toys, playground equipment, and work materials. They learned to share in carrying out assigned responsibilities, such as caring for animals and plants.

Photographs of the children in life situations made them feel important. Intriguing posters were made using the photographs. Also children marveled when they saw themselves work-

ing and playing together in a film which was made.

To help children discover the world about them and to aid in their social growth and development, many activities were planned. As has been mentioned, the excursions, some by buses and some on foot, advanced their knowledge of community life.

After browsing through many attractive books, the children asked the teachers to read to them about the first Thanksgiving or about boats, trains, cars, rockets, and other things. The children saw pictures of President Lyndon Johnson and his family, of other presidents, of the Capitol of the United States, and of the White House. Pictures pertaining to many subjects were available for the children to look at and discuss. They repeated the Pledge of Allegiance. They saw the flags of the United States and of Texas. They talked about the colors in the flag and what the flag represents. They stood respectfully as "The Star Spangled Banner" was being played or sung.

Policemen, firemen, doctors, dentists, nurses, and many other community workers explained how they might be of help to the children and to the community. The children were enthralled at the different apparel and listened intently as the people related some of their experiences. The safety of the individual, or helping the children learn to take care of themselves, was emphasized throughout the program. Policemen discussed traffic signals and crossing the street safely; doctors discussed poisons, safe play, and clean foods.

Creative arts. The children were given some time each day in acceptable self-expression through the creative arts. Artistic expression was a means of conveying their feelings and ideas to others. This means of communication seemed both satisfying and relaxing and served, too, to give them a proper

self image. Teachers helped the children to become aware of colors and to learn the names of colors. Children mixed colors and were amazed at the new colors.

They became aware of the texture of materials—wood, paper, cloth, plastic, and others. Also they modeled with clay, play dough, and plasticene. They painted with tempera paints, crayons, and finger paints.

The children delighted in rhythms, sounds of music, singing and movement. They sang nursery rhymes and other tunes. As they worked, they were allowed to hum or sing quietly. As they listened to recorded music, they clapped their hands or patted rhythmically, fast, and slow, heavy and droopy, briskly or merrily, depending on the music. At other times, they swayed, rocked, reached, twisted, or turned in place. At times they chugged like a train, zoomed like an airplane, or waddled like ducks. They pretended to be falling leaves or snowdrops, or moving clouds. They played musical games such as "London Bridge is Falling Down" or "Here We Go 'Round the Mulberry Bush." They beat drums made from oatmeal boxes.

Education of parents

From the beginning of the program, meetings were held with the parents in an effort to encourage and teach them to help their children continue their growth in speech, common courtesies, knowledge, and skills learned at school. Parents were shown how to provide more stimulating experiences for their children at home. The McClennan County home demonstration agent gave instructions to the parents about balanced meals and practices necessary for maintaining good health. The fathers became interested in discussions on such topics as buying groceries on a limited income, family budgeting, and disciplining children. Through their work and social rela-

tionships with the directors and other staff workers, teacher aides and volunteer workers received inspiration and personal enhancement.

An open house was held each year at the conclusion of the summer programs and 85 to 90 percent of the parents attended. Here parents reveled in finger paintings and rhythms and enjoyed serving refreshments and explaining the Head Start program

Continuing Head Start

Following two summers the personnel of Waco Head Start stated that they believed the program had been successful. The directors reported that the number of failures at the end of the first grade in public schools was reduced. Public school teachers responded to questionnaires by saying that their classes containing Head Start children could follow directions more accurately, could communicate more fluently, and were more curious and attentive than earlier classes without Head Start children.

Those teachers working in the Head Start Program noted that many of the children were different individuals at the end of only eight weeks. Many had changed from shy and timid to confident, enthusiastic, and friendly children. There was a greater than average weight increase. In many ways the children had improved.

The flexibility of the program had its effect on the curriculum of the first and second grades in the Waco Public Schools, allowing more discovery and experimentation. Also the success of the summer Head Start Program led to the establishment of four day care, or continuing Head Start programs. Two were opened in August 1966 and two more, in August 1967.

In general, the program is similar in many respects to that of the summer Head Start programs previously described. Since day care involves younger children, the instructional

program is less complicated but equally exciting. The children converse; listen to music; see films and filmstrips; hear stories; and engage in singing, dramatizations, finger plays, choral speaking, and countless other activities. Also they learn simple things such as putting their shoes on the right feet and buttoning their clothes.

Teacher aides participate in a course, offered to them without cost, which is taught by a professor from Texas Woman's University in Denton. Another course for the regular teachers and directors, requires payment of tuition and grants university credit. In addition, many parents of day care pupils are learning in adult education classes.

Much is being attempted through Operation Head Start in Waco, and surely many lasting and beneficial improvements are being made.

Kinescopic Innovations in Teaching

VIVIAN Y. SIMONS
South Park, Texas, Public Schools

SOUTH PARK INDEPENDENT SCHOOL DISTRICT is located in Beaumont, Texas, a city with a population of about 130,000. Approximately 10 percent of the population of Beaumont is enrolled in South Park Schools.

How South Park Schools became involved in television

Through the years the South Park School System has been fortunate in being guided by men of vision such as the present superintendent, R. A. Permenter.

Several years ago the superintendent and the Board of Education began to weigh the possibilities of improving classroom instruction through the use

of a demonstration classroom equipped with closed-circuit television facilities. The decision was made and by September 1964 the demonstration classroom studio was ready for use.

The 1964-1965 school year was an exciting one at South Park Schools. The first experimentation with the new television equipment involved an ambitious in-service program in language arts at the primary level. At different times during the school year various primary teachers brought their youngsters to the classroom to demonstrate good teaching techniques in language arts. On each occasion a group of primary teachers hidden away in the board room watched their colleague intently. At intervals during the 1964-1965 school year observer analysts visited the classrooms of the primary teachers in the South Park District to determine whether viewing the demonstrations on closed-circuit tv had resulted in improvement in primary language arts teaching techniques.

In 1965-1966 the television equipment was used to focus on methods of teaching social studies at the upper elementary level. The 1965-1966 plans provided for nine social studies lessons to be videotaped. Later, at in-service workshops, all teachers of grades four through six viewed, discussed, and rated the taped lessons. Although no provision was made to evaluate the effect of the program on classroom instruction, the program was considered a success.

Title III funds

Early in 1966 Mr. Permenter had an idea. Why not request federal funds under ESEA Title III to enable South Park to further exploit its closed-circuit equipment? Perhaps arrangements could be made to involve the faculty of the Lamar State College of Technology, located almost within the shadow of South Park High School. Why not enlarge the scope still fur-

ther? Why not include the University of Houston and the University of Texas? And why not further exploit South Park's tv capabilities by including the twenty-eight public school districts which make up the Lamar Area School Study Council, an in-service program which has been operating since 1962?

The application was made. In May 1966 South Park received a Title III grant for slightly over \$211,000 to operate an experimental program for thirteen months. In return, South Park pledged itself to produce seventy-five videotaped demonstration lessons focusing on exemplary and/or innovative teaching techniques in five subject areas: foreign language, the language arts, mathematics, science, and the social studies. The grant further provided for kinescoping on 16mm film and making ten copies of the best videotaped lessons.

By the middle of June 1966, a staff was organized and consisted of a director, an assistant director, and five staff consultants (one for each subject area). The staff studied the knotty problem of how to improve teaching strategies so that learning could occur more efficiently in the classroom.

Results of the 1966-1967 work

In many ways, the 1966-1967 South Park Title III staff felt akin to the hardy nineteenth century pioneers who blazed trails westward. During the South Park adventure in using television to demonstrate exemplary or innovative teaching techniques, the staff met no Indians but felt ambushed at times by experts who championed conflicting teaching theories. Frequently they felt stampeded by imponderable elements in the human equation as well as by innumerable technical difficulties. As the first year of operation came to a close, however, the staff felt a sense of satisfaction. Over seventy-five demonstration lessons had been videotaped,

most of which had real value for pre-service and in-service training. Nearly thirty of the videotaped lessons had been kinescoped, study guides had been prepared, and many of the films were already in use on college campuses, in teacher-training classes and in in-service workshops around the country. In view of the rationale on which the experiment had been based, the year had been a successful one.

Developing lessons

What criteria had the staff used in developing lessons for videotaping?

The staff decided that if the viewer could respond positively to such questions as the following, the taped lesson would measure up to the standards they had set:

Objectives

Are the immediate and long range objectives for the pupil clearly discernible?

Can a reasonable degree of success in achieving the objectives be realized in the time limit of the lesson?

Do the objectives represent a skill of lasting value to the pupils?

Teacher Preparation

What evidence indicates that the teacher has anticipated the learning difficulties of the pupils?

How does the teacher relate this lesson to other learnings?

Has the teacher made any provision for individual differences in levels of achievement, abilities, and interests? If so, what?

Procedures

What techniques are used to stimulate interest and enthusiasm of students?

How does the teacher recognize the contributions of pupils?

What procedures are used to develop comprehension, analysis, and synthesis rather than surface understanding of recall and recognition of bare facts?

To what extent are affective questions used intelligently to elicit pupil opinions and to develop attitudes and values?

How successful was the teacher in guiding the students toward reaching valid generalizations?

How does the instructor employ the use of praise to encourage the pupils?

Learning Activities

Were the activities pertinent to the learning problem?

How did the activities help to emphasize significance of the skill to be mastered?

How did the activities challenge the pupils to think of solutions to the problem?

Appraise the teacher's questioning technique by asking,

Are the questions related to the outcome desired?

To what extent do the questions encourage verbalization of pupil's knowledge?

How do the questions require that the pupils analyze and synthesize information in order to arrive at a generalization?

How does the teacher develop in the pupils an awareness of the importance and usefulness of their newly acquired skills?

Is the teacher's summation of the lesson satisfactory?

Evaluation procedures

All of the videotaped lessons were subjected to rigorous evaluation. During the taping sessions the Title III staff evaluated each lesson by applying a detailed checklist called the "Staff Self-Evaluation Checklist," which covered every aspect of the production of the lesson. Listed below are the items placed under scrutiny:

1. Orientation frame
2. The classroom
 - Seating arrangement
 - Visual aids
 - General Appearance
3. The teacher
 - Appearance
 - Use of language
 - Relationship with class
4. The pupil
 - Appearance
 - Classroom conduct
 - Responsiveness
5. The lesson presentation
 - Introduction
 - Organization
 - Materials
 - Activities
 - Type of questions
 - Culmination of lesson
6. The lesson plan as revealed by the demonstration
 - Objective
 - Activities demonstrating technique
 - Principles of teaching and learning
7. Technical production
 - Picture quality
 - Audio quality

If the staff reacted favorably in applying the above criteria to the videotaped lesson, the next step was to have the demonstration evaluated by a group of educators who were not directly connected with the project. They, too, subjected the lesson to rigo-

rous scrutiny by applying the "Expert Evaluation Checklist," similar to the "Staff Self-Evaluation Checklist." If the lesson received favorable reactions from the panel of experts, ten 16 mm kinescopes were made from the videotape.

Copies of the kinescopes were then sent to the University of Houston, Lamar State College of Technology, and the University of Texas for field testing. Each kinescope was accompanied by a discussion guide in which the underlying rationale was stated as follows:

The film is to be used for in-service training of teachers, not for classroom instruction.

The film demonstrates one technique of coping with a specific teaching problem. Other avenues of attack may be equally effective.

The staff is aware that this demonstration, as any other unrehearsed lesson, falls short of perfection.

If the filmed demonstration stimulates the viewer to think constructively in trying to find his own answer to the problem posed, the film will have accomplished the purpose for which it was designed.

Specific accomplishments, 1966-1967

In the language arts area seventeen videotaped demonstration lessons were produced, spiraling through the curriculum from Head Start to senior high school English. Ten of these were kinescoped. Seven were duplicated in ten copies for distribution. Three films covered the teaching of reading skills at the upper elementary level: *The Expanded Survey Technique*, *Reading Critically*, and *Unlocking Long Words*.

One language arts film demonstrated a technique for teaching paragraph construction at the elementary level: *The Stand-Up Paragraph*.

Three other films focused on teaching the language arts at the secondary level. Two of them were linguistically orientated: *Basic Sentence Patterns*, and *Nouns and Verbs in Linguistics*. The third secondary film, *Considering*

a Universal Theme, demonstrated a humanistic approach to the teaching of poetry.

All seven language arts films now enjoy a brisk circulation from Maine to Alaska. College professors and curriculum directors find them valuable as springboards for stimulating discussions of effective teaching practices.

Films produced, 1967-1968

A continuation grant for 1967-1968 supported the production of twenty-four additional kinescoped demonstrations, eight in the area of language arts. The plan in language arts was to spiral again through the curriculum from Head Start through Grade 12. To date seven language arts demonstrations have been approved for kinescoping in the 1967-1968 series of Improving Teaching Strategies: *Construction Principles of English Sentences*, *Following Oral Directions*; *Haiku*; *Thought Compressor*, *Vocabulary Stretcher*; *Learning Sequence at Head Start*; *Listening for Appreciation*; *The Sentence Pattern Game*; and *Thinking Phonetic Sounds*.

Producing demonstration lessons for kinescoping

The reader may ask: Who selects the lesson topics? What criteria are used in making the selections? Who is responsible for planning the lesson?

The lesson topics are chosen by the Title III staff consultant for the particular subject area with the advice of the special consultants secured from the faculties of nearby colleges and universities. Drawing upon knowledge and experience, these people identify areas in the curriculum which can be treated satisfactorily within the limitations of the television technique. On occasion the choice is concerned with subject content, but the primary focus is always on methodology.

After the lesson topic has been se-

lected, the subject is thoroughly researched before a detailed lesson script is written. The staff consultant then prepares the lesson script and submits it to the staff directors and to the special consultant for approval. Final revisions are made, and plans are made for the taping of the lesson.

Who teaches the lessons? All of the lessons in the 1967-1968 series of Improving Teaching Strategies have been taught by one of our staff consultants or by one of the special consultants. From time to time during the 1966-1967 schedule, classroom teachers from the various twenty-eight districts were used as demonstrating teachers.

Are the lessons rehearsed? With so much prior planning it would be foolhardy to tape a demonstration lesson without trying it out on somebody. Who are the guinea pigs? They are the members of our own staff who attempt to react as the pupils who will participate in the actual demonstration. In order to protect the spontaneity of class response we try never to expose a group of pupils to a lesson prior to taping.

Conclusion

The reader probably will agree that the dangers and pitfalls encountered in South Park's Title III program are comparable to those experiences of pioneers who spanned the continent. Whether or not the work at South Park will influence other American classrooms in the years to come remains to be seen.

In any event, for the cost of postage the kineoscoped demonstrations are available to any school faculty for in-service workshops or to any college of education for preservice training. For further information concerning the program, write Dr. Billy N. Pope, Title III ESEA, South Park Schools, 1025 Woodrow Street, Beaumont, Texas 77705.

A Reading Council Develops Secondary Materials and Methods for a College Preparatory Course

VELLA BASS

Niles Township High School East,
Skokie, Illinois

READING INSTRUCTION in high school can be a vital part of training for college. While a background of mathematics, science, history and literature is essential for college preparation, the ability to attack reading assignments is equally important. Many students who have done well in the subjects in high school, experience a feeling of frustration when confronted with the reading necessary in college. Many instructors no longer explain the textbook but lecture on supplementary material, giving the student the responsibility of interpreting the text with understanding. A student must be able to understand the author's point of view and locate significant arguments, facts or data to support it. It is up to the student to organize and relate ideas and make generalizations. He must understand the structure of written language so that he can read with precision. He must be aware of what to look for in various types of exposition, be it a cause and effect relationship, a problem-solution presentation, an opinion with supporting data, or a significant idea as a basis for a theory. He must recognize a premise and a development; he must know a supporting detail from an example or supplementary explanation. When the college student reads in the humanities and social studies, he will be confronted with theories and arguments. This type of reading requires thinking and critical judgment.

The noncredit college preparatory course at Niles Township High School was organized with these ideas in

mind that juniors and seniors who score average and above on Nelson-Denny or the cooperative reading tests are admitted. The below average student is urged to enroll for individualized instruction until he improves sufficiently for the course.

No one text is used, but basic materials are used for the various skills presented. Students are given the following program which elicits discussion as to their interest and their purpose in taking the course:

Speed Reading and Eye Training

Comprehension

Vocabulary

Notetaking

Study Skills (SQ3R—Spaced Review—Concentration)

The mechanics of reading is discussed after students read parts of "How Do We Read," Chapter I of *Increasing Reading Efficiency* by Lyle Miller. More on this subject will be provided when students use *Reading Skills* by Baker for transfer reading.

Speed

Since most students are greatly interested in improving reading speed, this area is introduced first. The concept of variability is presented so that students understand that speed should vary according to purpose for reading and the difficulty or familiarity of the material. We use the individualized Controlled Reader in conjunction with transfer readings. Transfer reading is timed reading under conditions of pressure to finish as soon as possible followed by a comprehension check. Most students double or triple their rate, attaining speeds of 500 to 900 words per minute. We define speed reading as approximately 400 to 900 words per minute, our rationale being that 400 words per minute is faster than subvocalization permits while over 900 words per minute would be skimming.

Chart keeping insures that accurate

records are kept, facilitates our supervision, and maintains interest because students enjoy watching their progress. It is important that increases in speed be made gradually, step by step, so that the eyes and the mind can be gradually trained. Each time a student increases his speed by 30 words per minute, his comprehension tends to drop. As this point, many make the mistake of returning to the previous speed. A student should stay at the new speed until his comprehension is 80 percent or above on three consecutive checks at that level. Then he may increase his speed. A student should be encouraged to work at his new speed until his eyes and mind are trained in faster perception. Jumps in speed, that is, taking an increase of more than 30 words per minute, or the next position on the machine, should be discouraged. We have found that no training takes place with this practice. We feel it is important in learning speed that individual machines be used so that each student can increase his speed when he is ready.

Four other skills are taught while using the Controlled Reader. Reading with a question in mind, even when not using SQ3R, aids comprehension and concentration. Students form the habit of posing a question, "Read to find out. . . ." and keeping it in mind while reading the film. By marking the type of error on their charts, students distinguish between main idea, detail, and inference. Vocabulary study is part of the preview. The fourth skill, concentration, is improved in this practice. The students enjoy using increasingly difficult films and getting high comprehension scores while increasing their speed. They say they want to read fast and be able to comprehend advanced material. They consider most transfer readings too easy. *Reading Skills* by Baker is more interesting because it is informative.

Comprehension

The favored books used for comprehension skills are *College Reading* by Marvin Glock and *Developmental Reading* by Guiler, Raeth and May. Glock's book contains interesting articles by prominent authors and covers many skills. The main divisions concern main ideas and details, tone and intent, organizational pattern, reading to answer a problem, and critical reading. But within these classifications, skills are broken down to suit the specific essay by using appropriate questions. The questions in this book are challenging. Many books contain good essay material but the questions are often poor. The correct choice is generally well-worded, but the wrong answers are obviously wrong. Some materials express a correct choice using the same terminology as was used in the essay so that the student can match the answer without real understanding. In Glock's book, the questions are thought provoking.

A favorite with advanced students is the section on critical reading. Students are told to analyze the questions as well as the essay to extract the principles involved in evaluating an article. The same criteria may then be applied to other reading. When the students have compiled a list such as the one that follows, it is interesting to select articles from various magazines and analyze them using these criteria:

Do conclusions logically follow from the premise?

Is the premise doubtful or based on fact?

Are terms properly defined?

Are arguments clear or ambiguous?

Are questionable assumptions taken for granted?

Are there any sweeping generalizations which are not verified by scientific substantiation or logical argument?

Are conclusions relevant to the main argument being developed?

What argument can be advanced against the author's position?

Does the author defend his position by analogy, reporting of facts or referring to authority?

What is the author arguing against as well as for?

Developmental Reading teaches main ideas, connotations, allusions, inferences, and organization. The section on outlining is particularly good for teaching the ways that an author develops an idea in a group of paragraphs.

Of course, the books must always fit the students. Some less difficult material may be found in "Idea Reading Drills" from *Increasing Reading Efficiency*, "Main Ideas" and "Finding Major and Minor Details" from *Books V and VI of Be A Better Reader* by Nila Banton Smith, and "The Main Idea" and "Tests of Rate and Comprehension" from *Power and Speed in Reading* by Doris Gilbert. For less skillful students it would be best to use paragraph study from these books before going on to essays.

Concentration is another area of vital importance. Many students do not realize that the ability to concentrate depends upon certain skills which may be learned. "Keep your mind on what you are reading" and "Arouse and maintain interest" are very vague admonitions. The question is "How?" Reading may be passive or active, and the ability to concentrate depends upon the degree to which the reader is engaged in active processes. Since thinking is faster than reading, the mind has time to wander if it not kept busy. We teach our students skills which keep their minds busy with the material being read. These are previewing, questioning, noting direction of thought, and organizing while reading. Previewing arouses curiosity which helps to create interest. Questioning the context while reading and looking for the answers spurs the mind

onward from thought to thought until the essence is extracted. Organizing mentally involves looking for main ideas supporting details and conclusions. Noting direction of thought alerts the mind to vital points being made. The reader is watching for the author's position. Will he refute a point of view or will he support and develop a premise? Guide words alert the reader to look for direction, but they are only an indication. It is the idea that counts. Guide words denoting change are *contrary to this*, *however*, *noting the same direction might be* *and*, *therefore*, *consequently*, and *as a* *ever*, *but*, and *in spite of*. Those *de-* *result*.

We teach this with the use of paragraphs from various sources. *Be a Better Reader*, Book VI, Chapters IV and V are excellent sources. An example would be an article, "New Directions," from a Peace Corps bulletin. Students are told to read to find the first indication of change and to note when the first question comes to their minds. The article begins, "While the first priority. . . ." Here we have an immediate indication of change before the first idea is even presented. We find that the first priority of African nations is being changed from educational development to something else. This creates the question, "To what?" We then read to answer this question. As we continue with the first paragraph, we find that the emphasis is changing to agriculture. But not until the second paragraph do we learn that rural transformation is the issue. The question the students think of here is "How will the Peace Corps be involved in this transformation? Will agricultural specialists replace educators?" As we read to answer this question, we find that the basic premise is concerned with two main points both of which depend upon human reactions to the change in question.

We begin to see the role of the Peace

Corps worker. He will be working with adjusting people rather than with technology. The third paragraph begins, "Even more basic," which indicates that another point may be presented which follows the same direction as the foregoing. Sure enough, this is the case as the author deals with another fundamentally human problem of change: that of the African's change in attitude toward his environment and land usage from a passive to an active one.

Study skills

College preparatory students wish to learn the best way to study a text book. We use the ideas developed by Francis P. Robinson. A brief talk on why, how, and for whom Robinson developed this method creates interest as they feel they are being treated like college students since the method was originally developed for them. We read and discuss the adaptation of Robinson's technique presented on pages 19 and 20 of *Increasing Reading Efficiency*. We show students an enlargement of the chart on page 96 of *Effective Study* by Robinson, which demonstrates the importance of practicing the method as well as learning what it is. We then apply the technique to various materials depending upon the composition of students in the class. If they are extremely advanced, we use a difficult college text such as *A History of the Modern World* by Palmer. For a rather slow group, we use articles with subtitles such as those found in *Power and Speed in Reading* before going on to text books. Along with the recitation step, we discuss principles of outlining. Students save their outlines which we use for spaced review for about five minutes once a week. At the end of the course, students take a test on the chapter, the results indicating the effectiveness of the technique.

Learning to create good questions

takes insight. Each student writes down one or two questions suggested by a title. These are submitted to one student designated as a secretary who compiles them. By discussion, the class picks out the three best questions. By analyzing mistakes, students learn to formulate good questions quickly and anticipate the types of questions which are likely to be answered at the beginning of a chapter or later on.

Note taking

Note taking is introduced by a lecture which explains the difference between note taking and taking dictation. The latter is writing down everything the lecturer says. We stress the importance of looking for structure and waiting until a point shapes up before writing. Organizing while listening leads to better notes and understanding. Students are trained to look for main ideas, supporting details, the lecturer's point of view and arguments in support of that view, and conclusions. Students look for signals which indicate major subjects, important points, change of direction of thought, conclusions, and transitions to a new subject. An excellent paper on signals and note taking in general is "On Lecture Notes" by Walter Swan, Reading and Study Center, Indiana University. Practice is given on lectures selected from the Science Research Associates *Reading Laboratory IV*.

Vocabulary

Vocabulary and word power is always interesting. Private study is alternated with class activities to create interest and provide an opportunity to use the words in context. We give students a paper on word parts from which they make as many words as they can. We use *30 Days to a Better Vocabulary* by Norman Lewis and Wilfred Funk, *Word Clues* by Educational Developmental Laboratories, Book L or M, and *Vocabulary for Col-*

lege by Paul B. Diederick and Sydell Carlton. Teacher-made sentence completion tests on each lesson lead to class discussion. Each book provides a contextual setting and develops a concept for each word, rather than just a memory for a synonym.

The course is fast moving, another facet of the role of developmental reading in high school.

Summer Programs

ISABELLA H. TOUSSAINT
BEAVER, Pennsylvania,
Area School District

ONE HUNDRED-FIFTY YEARS AGO Froebel pointed out that although learning begins in infancy, true education must begin in childhood, those active years between three and seven. Childhood is the period of most rapid physical and mental growth, it is the time during which environment has its greatest influence, it is the age that is most receptive to learning.

More recently, Bloom analyzed and summarized the findings of almost one thousand researches on human characteristics and published his findings in *Stability and Change in Human Characteristics* (2). His investigations clearly showed the tremendous importance of early learning. Its influence is reflected in the increasing interest in preschool activities and the passing of the Economic Opportunity Act of 1965 to provide for Head Start programs.

In spite of the recognized value of early training, not one of our states has compulsory education before age seven and many still do not provide financial support for kindergartens. Only about 54 to 65 percent of our five-year-olds are enrolled in preschool classes.

In Pennsylvania, established kindergartens do receive state support, and

as new ones are organized they must be continued. Each community decides for itself whether to provide pre-school experience and what age group may attend. This can create problems.

Compulsory school attendance age in Pennsylvania is eight years of age, but children may enter first grade as young as five years, seven months. In my own district, preschool experience is offered to children who are four years, ten months of age if the parents can provide transportation. Some children, therefore, miss kindergarten because of lack of transportation, and others must wait until they are almost six or, if the parents insist, enter first grade without the benefit of preschool training. Fortunately, we do not have many children who fall in either of these categories.

Intensive readiness program

For the past two years, we have tried to ready these exceptional children for first grade through an intensive six-week summer readiness program. Many factors are involved in reading readiness. Tinker says a child is ready to read when "maturation, experience plus verbal facility and adjustment are sufficient to insure that he can learn in the classroom situation" (10). In our school, attention was directed to providing linguistic facility through wide and varied experiences and in the hope that emotional adjustments would be a by-product. Our motto was, "Happy Learning," our approach, eclectic—a combination of experimental, visual-phonetic, and kinesthetic.

To provide a background of experience, children were taken each week on trips by foot or bus. These trips included visits to the library, post office, farm, zoo, parks, and historical points of interest. Before each trip, children were readied through discussion, picture study, and creative art. After trip the children developed their

own individual experience chart and helped in the making of a large classroom chart.

One of our specific goals was to teach letter names and sounds. Durrell maintains that the "two background abilities known to be important to beginning reading are visual and auditory discrimination of word elements . . ." and "if the child cannot tell letters apart, it is futile for the teacher to teach him words" (4). To teach the letter names and sounds, the Murphy-Durrell *Speech-to-Print* materials were used (5). This material is divided into two parts: the study of the names and sounds of the letters of the alphabet and the learning of 14 safety words. Both parts of the program were used simultaneously: the letters, to assure success in reading, and the sight words, for their practical use on trips.

The local newspaper became a useful supplementary tool for identifying upper and lower case letters. The alphabet song became a daily part of our program to encourage the auditory learning of the letter names.

Visual materials were numerous and varied. For twenty minutes each morning, the EDL readiness filmstrips were used with the Controlled Reader. The children viewed the strips attentively and became quite proficient in seeing likeness and differences in pictures, forms, and words. Basic sight words, other than the Murphy safety words, were taught in context through the use of charts, blackboards, and writing. *The Read Book* (9) readiness materials were used to improve hand-eye coordination. On our field trips students looked for known letters and sight words on buildings, billboards, and even in skywriting.

Muscle coordination was developed in many ways. Some children had never seen or used crayons or paints nor cut and pasted pictures. Each day a new art medium was used to acquaint the children with materials and

give them practice in the use of their hands. Some lessons were carefully planned to stress following directions; others were self-directed and allowed free expression. However, all were integrated in some way with other class activities. For example, we made alphabet books which contained printed, typed, and cut-out letters as well as printed and original pictures. The covers required skills such as pasting, glittering, color identification, and bow tying. The latter was practiced on other materials until students were successful.

Distinctive feature

Perhaps the most distinctive feature of our program was the use of primary typewriters with these children. Every day the children had a twenty minute typing period, supervised by an aide on a one-to-one basis. Each child first learned to type his own name. Then, he was taught the letters of the alphabet in the order taught during the speech-to-print lessons. The child would be shown the letter and told its name. He would then say the letter and type it. In a day or two, he was permitted to select words which interested him. By the end of the first week or two, he would type a short creative story, which he would illustrate in his *Very Own Book*.

The aides selected for the project included mothers, college students majoring in education, and recent high school graduates. We were fortunate to have both men and women aides. Each aide was responsible for three children. During the class periods aides sat with the children and supervised their activities so that mistakes could be reduced to a minimum. On field trips, responsibilities were four-fold: to sharpen the children's observational powers by assisting in the recognition of signs, words, and objects of interest; to increase the child's vocabulary by identifying observed birds, ani-

mals, and objects by class and names (red birds—cardinals); to improve the child's language facility by asking questions requiring responses using the newfound knowledge; and to keep a record of at least ten observations to use as reminders for future typing and story lessons.

Other activities

Health, science, and mathematics were not neglected. Care was taken that hands were carefully washed before eating and teeth scrubbed afterward. Our science projects included growing flowers and beans for transplantation to home gardens; collecting seeds, leaves, and flower specimens; and attempting to hatch chicks in the classroom. Arithmetic concepts were developed through counting steps, stairs, cookies, straws, children, or anything else appropriate. Every effort was made to help children learn measurement terms, such as time, temperature, money, and weight, and to discover mathematics around them.

Class periods were never longer than twenty minutes. The classroom teachers presented all the new materials to the entire class of fifteen pupils. Then, they worked with groups of five children on concept building. During the small group period, aides worked individually with the children in the typing room while the art teacher provided small group instruction for others. The beginning and ending of each day were used for vigorous group activities.

Evaluation

How were the children identified as being ready for first grade? Several measures of physical, mental, and social readiness were used. Each child was screened for physical readiness by the school nurses and referrals were made if any anomalies were found. Two forms of the Metropolitan Readiness tests were administered as pre-

and post-tests (7). Mental ability was measured by individual tests, SIT (8) and Peabody Picture Vocabulary test (3). Readiness for physical, number, and social maturity was measured Banham's Maturity Level for School Entrance and Reading Readiness (1). Data were summarized and presented to the teachers for final team evaluation and recommendation. Results indicated, with one exception, that all children were ready to read.

Were the children really ready? Were they able to read by the end of the first grade? The data on the first group indicated a positive, "yes." Three of the children ranked ninth in a class of 288 on the Gates Primary Reading Tests (6). Their score was 3.9. Half ranked above the mid-point, and none were in the bottom twenty. The results of the second year have not been tabulated, but teacher evaluation indicates all but one will pass.

The results of these two programs indicate that children can profit from an intensive readiness summer program. The advantage of a more structured, experiential approach for regular kindergarten is suggested—an approach which creates in the child a desire to know about books; which broadens interest in the environment, art, and crafts; which helps to develop good work habits; and which promotes social adequacy and courtesy.

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A Status Study of Summer Reading Programs

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IN AN ERA when it is vital that every child learn to read competitively with other children of his age, the summer reading program has become increasingly important. During the summer teachers and administrators are free to experiment, to innovate, and to teach in a manner which is not repetitive of the regular program administered from September to June. This paper is a status study of the summer reading programs in the capital cities of the United States.

Problem. In the last few years, millions of dollars have been expended by the local school districts, the states, and the federal government to improve the quality of education. Further allotments of money have been expended to improve the quality of education for the disadvantaged children. Few studies have been made which analyze the characteristics of the programs that have resulted from these expenditures. Yet, this information would be helpful in planning future programs. This study seeks to establish the presence or absence of patterns. The following questions were asked:

1. Was a summer reading program conducted in 1967?

2. How was the reading program supported?
3. Who was eligible for the reading program?
4. How was eligibility for the program established?
5. What personnel were utilized to conduct the reading program?
6. What kind of instruction was given in the program?
7. How was the reading program evaluated?

Limitation of the study. This study is limited to the reading programs conducted in the summer of 1967 within the capital cities of the United States. The data were collected from superintendents in November and December of 1967.

Inasmuch as the population for this study was limited to the capital cities of the United States, the conclusions should not be generalized to the problem in the United States as a whole.

Basic assumptions. In a study which involves the completion of a questionnaire, certain assumptions need to be made and are considered basic to the study.

It is assumed that data concerning the summer reading programs are reported accurately by the superintendents.

It is assumed that each individual participating in the study completed the questionnaire in privacy and with assurance that the information would remain confidential.

It is assumed that each superintendent's evaluation is as objective as professionally possible.

It is assumed that each superintendent understood the terms which appear on the questionnaire.

Procedures. A questionnaire was used to collect data. The nature of the problem suggested the use of the sample survey as the method of investigation. Information collected through the questionnaire can be tabulated more objectively than information through a conference or interview.

Sample. The sample used for this study was all of the capital cities of the United States. Each city has a common desire for quality education and is respected in its own state for educational leadership. Further, the capital cities afford a sample which includes

each of the geographical zones of the United States and also includes a range of population.

Thirty of 50 superintendents returned questionnaires. Twenty superintendents did not return a questionnaire after second requests had been sent. All returned questionnaires were usable and represented 60 percent of the original sample.

Treatment of data. The data were analyzed by computing percentages for each of the questions on the questionnaire.

Results and interpretations. The data obtained were interpreted according to the questions cast for the study.

1. Eighty-six percent of the capital cities held a summer reading program in 1967.

2. Sixty-three percent of the summer reading programs were supported by Title I funds; thirteen percent were supported by community participation; six percent were supported by state participation; and six percent were supported by local private contributions. The remaining twelve percent were supported by tuition, district funds, regular school funds or a combination of the aforementioned.

3. Eligibility for the summer reading program was reported thusly:

Sixty-four percent of the summer reading programs were designed for children who were below grade level, who were deprived, or who needed remedial work.

Thirty-six percent of the programs were designed for everyone.

Fifty-three percent of the programs included primary aged children.

Seventy percent of the programs included intermediate aged children.

Forty-six percent of the programs included junior high aged children.

Forty percent of the programs included senior high aged children.

Sixteen percent included preschool aged children.

Three percent of the programs included adult aged people.

From this data it is possible to interpret that most schools included programs for several different grade groups. The majority of the programs included the primary, intermediate, and junior high aged children.

4. Eligibility for the summer reading program was established in the following ways:

Sixty-six percent were referred by teachers.

Forty percent were referred by parents.

Twenty-six percent of students requested to be included in the program.

Thirteen percent were referred by a psychologist.

It is evident from these figures that eligibility was established by the utilization of more than one criteria.

Further eligibility was established by the background of the children:

Thirty-six percent of the children attended Title I schools.

Twenty-three percent were assigned because of their socioeconomic background.

Hence, it may be interpreted that eligibility was established by more than one group of people plus the socioeconomic background of the child.

5. The personnel that were included to conduct the summer reading program included the following personnel in addition to classroom teachers and principals:

Thirty-six percent of the programs used teachers aides.

Thirty-three percent of the programs used clerical workers.

Twenty-six percent of the programs used nurses.

Twenty-three percent of the programs used psychologists.

Twenty percent of the programs used librarians.

Ten percent of the programs used sociologists.

And six percent of the programs used parents.

It is possible to interpret from these data that most school systems used a variety of personnel to conduct the program. The program was not limited to an encounter between the teacher and the student.

6. The kind of instruction provided to the students in the summer reading program included a variety of materials, content, and methodology.

Sixty-six percent of the teachers used individualized reading.

Sixty-six percent of the teachers used programed learning materials.

Sixty-six percent of the teachers used library books.

Twenty-six percent of the teachers used the basal reading series.

Sixteen percent of the teachers used teaching machines, controlled readers, tachistoscopes, or games.

From this evidence it may be interpreted that the reading program varied greatly from the use of the basal reading text. It would appear that the teachers used a wider range of materials and attempted to place much greater emphasis upon individual need and interest than is commonly done during the school year.

Fifty percent of the summer reading programs also included instruction in spelling, writing, and oral language.

From this evidence it can be interpreted that half of the schools were interested in assisting the child with his ability to communicate orally and in written communication. These schools did not consider reading

as a skill which could be learned in isolation.

Fifty-three percent of the summer reading programs also included mathematics.

Twenty-three percent of the summer reading programs included social studies and science.

Ten percent of the summer reading programs included physical education and health.

From this evidence it can be interpreted that these schools were attempting to aid the children in each of the areas of the regular school curriculum. It could further be interpreted that the child needs special reading skills to meet success in mathematics, social science, science, and health as regularly taught. Hence, the summer programs included work on such skills.

Forty-three percent of the programs included field trips as a means of widening the children's background.

Fifty percent of the programs included home visits by school personnel.

Fifty-six percent of the programs used parent conferences.

Forty percent of the programs used report cards.

From this evidence it can be interpreted that many schools saw a need to give children enrichment activities through field trips. They also saw the value of communication with the families as is evidenced by the home visits and the parent conferences. Some schools still felt a responsibility to evaluate the child's work in the regular school pattern and used the report card even during the summer session of work.

7. Summer reading programs were evaluated by a variety of personnel, however, the majority of the programs were evaluated by teachers and/or administrators.

Seventy-three percent of the programs were evaluated by teachers.

Sixty-six percent of the programs were evaluated by administrators.

Twenty-six percent of the programs were evaluated by the remedial reading teachers.

Twenty-six percent of the programs were evaluated by students and parents.

Ten percent of the programs were evaluated by psychologists.

Thirteen percent of the programs were evaluated by a speech therapist, the department of public instruction, or a federal evaluator.

Fifty-six percent of the evaluation teams used an achievement test.

Thirty percent of the teams used an attitude survey.

Sixteen percent of the teams evaluated by counting the number of books the children had read.

Thirty-three percent of the teams evaluated by having conferences.

Thirteen percent of the teams evaluated by using grades.

From this evidence it can be interpreted that a variety of measures were used for

evaluating the summer reading program. Most of the evaluation appears to have been done by the utilization of achievement tests either in isolation or combined with another measure such as student attitude, conferences, or number of books read by the students.

There was no evidence of any school having used any sociometric device to ascertain whether the child's position had changed in the classroom as he gained more skill in reading.

Conclusions. For the population studied and within the limits of the study, the following statements seem warranted:

1. Reading programs during the summer of 1967 were held by 86 percent of the capital cities.

2. Sixty-three percent of the programs were supported by federal funds.

3. Eligibility was established by reason of the child's attendance at a Title I school or socioeconomic level combined with below grade reading level.

Most of the programs included multi-age instruction. However, the primary, intermediate, and junior high aged group had the greatest number of programs. Fewer programs were held for the preschool or high school group.

4. Eligibility was usually established by the teachers in the school that the children attended. Although many parents and students also had a voice in requesting entrance to the program.

5. Personnel for the summer reading program included classroom teachers, aides, and clerical workers in over thirty percent of the cases. Nurses, librarians, and psychologists were utilized in twenty percent of the cases.

6. The type of instruction utilized for the programs included individualized reading, programmed learning, or library books in sixty-six percent of the programs. Only twenty six percent of the schools used the basal program.

The program included all of the language arts in fifty percent of the schools, and mathematics in fifty-three

percent of the schools. Twenty-three percent included social science and science in the summer reading program.

7. Evaluation of the programs was chiefly done by teachers and administrators using achievement tests and some attitude surveys.

From this study it can be interpreted that the summer reading programs in the capital cities have been planned using multisensory, multilevel instruction including the latest forms of instruction to aid the disadvantaged learner. The instruction has been conducted with the assistance of teacher aides, clerks, librarians, psychologists, and sociologists. In many cases the student horizons were enriched by the utilization of field trips. In many cases an attempt was made to improve communication between the home and school through home visits and parent conferences. Instruction was given in reading and in related areas of the curriculum in an attempt to assist the children to compete more successfully during the school year.

Eclectic Reading Instruction for Primary Grade Success

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ECLECTIC, from the Greek *eklektikos*, means 1) selecting what appears to be best in various doctrines, methods, or styles or 2) composed of elements drawn from various sources.

There are at least three areas which must be discussed in any presentation regarding eclectic methods of primary grade reading instruction. You will note even in these introductory remarks that we speak of eclectic methods since quite simply the various language skills of various children, the available reading curriculum materials, and the instructional capabilities of

various teachers will determine the specific eclectic methods to be employed for optimum reading achievement for each individual child.

The three areas of concern are as follows:

1. An understanding, or at least an attempt to understand how three learning systems (tactile, auditory, visual) develop in each individual child to that sophisticated level where meaning can be conveyed by written symbols.

2. An understanding of the available and usable reading approaches, that is those philosophical and psychological foundations for reading instruction and teacher knowledge of the various reading systems, meaning those extant curriculum materials and teachers' guides used in teaching children to read.

3. The third area of concern is the most complex of the three, assessment of the components of effective instructional technique; those specific and quite unique teacher behaviors which provide the means whereby children learn to read.

There are three learning systems or neurological systems, if you will, which man utilizes for learning, the tactile, the auditory, and the visual systems. The extent of what man can learn and the sophistication of the concepts which man can understand is determined by the neurological mode or neurological modes of learning utilized in the learning process.

Except for persons who are severely handicapped by physiological or neurological dysfunction, the haptic, tactile, or kinesthetic neurological system is the least refined and the most confining by both quantitative and qualitative measures. This learning system is, however, a most important learning mode in the early years prior to formal school experiences, and more than likely a most efficient learning modality in the initial phases of reading instruction. Though it is premature to discuss the use of the tactile system in

initial reading instruction, let me indicate at this point that much of the reading disability, a much higher percentage than we suspect, is probably due to insufficient and inefficient use of the tactile modality in learning to read.

The auditory system is a more sophisticated learning system and for many pupils in our school population it provides the only available means whereby we can teach the pupil those necessary skills and social attitudes for successful adjustment to society. The reference here applies to the significant number of pupils who do fail to learn to read in our schools. For such children and young adults what they hear and what they casually observe provides stimuli for their subsequent social behaviors. The tragic consequences of failure to learn to read, and failure to succeed in school has manifested itself so often during our "long hot summers" that the topic needs little elaboration.

The most sophisticated and refined learning system is the visual system and reading is the most elaborate process whereby information can be gathered, can be critically analyzed, and ultimately can influence the intellectual and social development of the individual.

Unfortunately for teachers of reading, these learning systems do not mature at the same rate for all children; obviously, do all children present themselves to the first grade teacher with the same level of perceptual skill in any one of the three learning systems. The fact of individual differences with respect to the sophistication of these sensory systems is apparent at the first instance of failure in the first formal learning activity.

Out of this knowledge of individual differences with regard to the relative refinements of these learning systems and because of our concern for the "whole child," the professional component has in many instances developed

kindergarten programs which pay no heed whatever to the fact that such learning differences exist. We have similarly developed some rather extensive language and reading readiness programs of the uniform instruction variety requiring all pupils in the classroom to participate for the greater good of something called social development. If kindergartens exist not only to provide desirable social experiences, but also to refine the neurological systems through readiness skill activities so that the skill of reading can be learned at some point in time, then the grouping of kindergarten pupils and other instructional adjustments must be made if we are to individualize beginning reading instruction.

As a profession, we are just beginning to appreciate the relationship which exists between neurological system development and reading/language readiness programs and formal instructional programs. Unfortunately, most of the articles dealing with the neurological aspects of reading instruction relate bizarre diagnostic protocols and exotic readiness developmental and/or remedial reading methods. These 'interesting' solutions to the reading and language problems we have in our schools are generally sensationalized to the point of parent hysteria with consequent pressure on the schools to provide tumbling mats, trampolines, or whirling mobiles and culminate in a general feeling of inadequacy by classroom teachers.

The causes of reading disability are rarely neurologically based. Most neurologists, ophthalmologists, otolaryngologists, and pediatricians would place the incidence at less than three percent of the total number of reading failures in our schools. Again, unfortunately, most of the so called neurological diagnosis is effected by individuals who by training, experience, and motive are least qualified to determine such causal relationships.

What is the degree of neurological involvement in learning to read? The two learning systems most intimately involved in this learning process are the visual system and the auditory system. These two systems must operate in a synchronized manner if efficient reading is to occur.

What is the act of reading? Reading is the accommodation of a learned set of visual symbols (graphemes) to an already established auditory set (phonemes, vocabulary, and syntax). Basically it's a fitting process.

What level of neurological sophistication, visual and auditory, is essential for beginning reading instruction? That level at which the child is attentive and persistent with the receptor senses, specifically the eye and ear.

What reading readiness activities best develop these attention and persistence skills? To my mind, a visual discrimination program of differentiating among letter forms and an auditory discrimination program stressing letter names and sounds is, more than likely, the most efficient reading readiness program.

There is, obviously, more to an eclectic reading readiness program than learning letter names and sounds, but the research evidence of the United States Office of Education Cooperative First Grade Research Project is clear and incontrovertible on this point: knowledge of letter names is the single best predictor of success in reading in grade one. The second best predictor is phoneme knowledge, or pupil skill in identifying the separate sounds in spoken words. I am not certain that letter knowledge is causative of reading success; I am, however, more than reasonably convinced.

The neurological implications related to readiness programs are not as complicated nor involved as some have tended to make them. Indeed, it is both fashionable as well as time consuming to develop an elaborate vocab-

ulary to disguise the relatively simple causes of reading disability. The fact of the matter is that in the majority of so called learning/reading clinics too much time has been spent in developing medical/neurological treatises of dubious relevance and too little time in developing specific instructional materials for specific educational problems. There frankly is too much circumlocution and too little direct pupil instructional activities of the skill variety. There are excellent readiness programs of the letter knowledge variety commercially available; these programs should be energetically and intensively used in developing pupil attention and persistence abilities in both the visual and auditory areas through the utilization of the tactile modality.

By far the major causes of reading disabilities in the primary grades are of the attention and persistence variety. More simply, a pupil who fails to learn to read fails because he cannot accommodate the oral word recognition instruction of the teacher to the lexical item or word he is supposed to be observing, and generally it is a boy.

In too many instances there is too much oral interference by the teacher, too much time is spent in presenting unnecessary word meanings the pupil already knows or in verbalizing other meanings which have little relevance to the context of the story content. Conversely, little or no time is spent requiring the pupil to overtly respond to either oral or visual stimuli. I am strongly suggesting that in order to refine auditory discrimination skills of those children with inferior skills, it may be necessary, it certainly is most desirable, to utilize the tactile learning system. If the tactile system is not employed, the pupil may not be attentive nor persistent and may not learn the correspondence between the printed and spoken forms of the same lexical item. All of the most widely used reading systems utilize only the visual

and auditory learning modes. What seems to be needed, and especially by boys, in beginning reading activities is utilization of the tactile, auditory, and visual modes. In addition, dependence on inferior learning systems will be conditioned by the level of sophistication of a superior system.

Eclectic methods of beginning reading instruction should, obviously, be diagnostically based. Readiness tests of the standardized variety and other measures of perceptual development when sensitively administered and intelligently analyzed will provide a favorable neurological base for an eclectic beginning reading program. How much phonics instruction for Jimmie? Or Tommie? Or Mary? How much dependence on a visual memory oriented, developmental approach for Joan or Clifford? How much utilization of the tactile system in developing effective visual and auditory discrimination skills? These questions can be answered and they must be answered if we are to improve the quality of our reading instruction.

First Grade Reading Programs, published by the International Reading Association, will provide an excellent background for those teachers and reading specialists who wish to be informed with respect to the various approaches through which reading as a skill subject can be taught. There are seven major approaches to the teaching of reading in the elementary school:

- Developmental approach
- Phonic approach
- Linguistic approach
- Language Experience approach
- Orthographic Stress approach
- Individualized Library approach
- Specialized approaches

Each of these approaches provides a category within which we find many systems. For example, within the developmental approach we find the Scott, Foresman system, the Ginn sys-

tem, and the Houghton Mifflin system. In both scope and sequence of skills to be taught, these systems are reasonably similar.

The phonics approach could be represented by such systems as the Phonetic Key System, the Open Court System, and the Carden System.

The Lippincott materials, the McGraw-Hill materials, and the Barnhart-Bloomfield materials would be representative of linguistic systems.

The language-experience approach would include the following points of view with regard to reading instruction, since the system itself is based on the language of the pupils to be taught and precludes prescriptive or commercially developed materials.

The points of view of R. Van Allen, Russell Stauffer, and Donald Cleland would be representative of the language experience approach.

Words in color, i.t.a., and the various diacritical marking systems would be included in the orthographic stress approach.

The individualized-library approach would, as with the language-experience approach, be represented by points of view rather than commercially available systems. The procedures advocated by Patrick Groff, Jeanette Veatch, and Willard C. Olsen would represent the general framework for individualized library systems.

These special systems would include such systems as the Braille system, the Gillingham system and the Honeywell-University of Minnesota system for teaching deaf children.

It is clear then from the few system examples listed that there are many approaches to beginning instruction and many more systems within each approach. To talk about eclectic method implies familiarity with both available approaches and usable systems.

Another major conclusion of the United States Office of Education

Cooperative First Grade Research Project was that there were greater variations in pupil achievements between the highest achieving classroom and the lowest achieving classroom in any one reading system evaluated, than there were among the highest achieving classrooms of all the reading systems evaluated. Even where factors of intelligence, socioeconomic background, and readiness abilities were taken into account, these wide variations within reading systems continued to be apparent. Obviously, differences in certain teacher competencies were causing these differences in pupil scores. This conclusion leads us to a discussion of the most complex factor in developing eclectic reading programs, the teacher, and that very unique interaction that occurs when *this* particular teacher interacts with *these* particular children utilizing instructional materials from *this, that, these, and those* particular reading systems.

There has been much discussion, little research, and no conclusive evidence regarding factors related to teaching effectiveness. Neither age, sex, experience, formal education, attitude, personality, nor marital status bears a universal positive correlation with teaching success. We have available no valid and reliable measures of the quality of instructional service in reading. Many supervisory personnel assess teacher effectiveness by evaluation of three questionable evaluative factors, pupil control, physical appearance of the classroom, and physical appearance and speech of the teacher. I am aware of no research which indicates that any of these factors bears any relationship to effective teaching. Apparently some quite unique instructional modifications made by individual classroom teachers accounts for the reading success or failure of pupils in particular classrooms throughout the nation.

Admitting this paucity of research evidence on the matter of teacher effectiveness in reading and realizing that the remarks which follow are but opinion tempered by experience, I should like to present four instructional modifications which I believe identify the effective eclectic teacher of reading.

1. Eclectic teaching of reading occurs when diagnosis of pupil deficiencies in reading is understood as developmental method.
2. Eclectic teaching of reading occurs when there is systematic oral reading for diagnosis conducted daily in beginning reading programs and regular periods of oral reading for diagnosis conducted for pupils experiencing word recognition difficulties in upper primary or intermediate grades.
3. Eclectic teaching of classified reading occurs when the classroom teacher utilizes instructional material by skill category and provides intensive instruction utilizing such materials at the first instance of pupil failure, or better, prior to an anticipated failure.
4. Eclectic teaching of reading occurs when the classroom teacher utilizes programmed type materials to intensify pupil practices in specific reading skill areas.

Major obstacles remain to be overcome in designing truly effective eclectic reading programs. Many challenges face us as we attempt to solve the problems of developing universal literacy. No other professional group seeks to accomplish higher goals

A Pilot School with Emphasis on Reading Instruction

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INCORPORATING reading processes into the total school program at the elementary school level is the topic of this discussion.

Keep in mind this quotation from an architect as you follow my suggestions for a pilot school for reading. "Make

no little plans, they have no magic to stir men's blood, and probably themselves will not be realized. Make big plans, aim high in hope and work, remembering that a noble, logical diagram once recorded, will never die; but long after we are gone; will be a living thing, asserting itself with ever-growing insistency" (Daniel Burnham).

This pilot school does not exist. Please don't say "It can't be created." Let your imagination create a public school, develop a curriculum in reading, and employ an adequate faculty of enthusiastic and knowledgeable teachers who will set their sights firmly and irrevocably on *one* goal—the development of all students in all the skills of reading. Psychologist Mursell told us some time ago that we have to reckon with only one insuperable obstacle to learning.

Main argument

Consider how the course of study must be planned in a pilot school for reading. My main theory can be expressed in one sentence: Reading must be taught in greater *breadth* and *depth* in every grade in this school than it has ever been taught in most public schools to date. We have given lip service to reading, saying that the potential to read is basic to becoming educated. Skills of reading can be communicated and they can be taught.

My first innovation would be the choice of locality. The school should be so situated that it will have a body of typical American students of superior, average, and low average abilities. It is not to be a psychiatric clinic nor even a haven for abnormal children. We want a typical American group with normal reading abilities and disabilities. The school should be of moderate size—perhaps 200 pupils in the first six grades. The school might be one of several schools in a suburban area and be designated as the reading school of the local system.

Many reading specialists

My second innovation would be an enlargement of the reading faculty. "Every teacher is a teacher of reading" is our old refrain. Would that it were true! Let us, however, staff this school with a basic reading clinic. Schools, as scientific institutions bent on successful results, are beginning to provide a basic clinic service. The purpose of a clinic is to diagnose all students before school opens.

The clinic can become a permanent fixture to care for the problems which will arise during the year and to test individuals as well as class groups periodically.

A file of test results will be kept in this clinic along with copies of reports sent to parents. Statistical analysis of the results may be assigned to this office or to the faculty of reading teachers.

Program and equipment of clinic

Briefly, the clinic will have to be staffed with two or three trained psychologists to administer and report on the following matters:

1. Parent interview
2. Psychological Testing
 - a. Wechsler Intelligence Scale for Children
 - b. Stanford-Binet
 - c. Goodenough—Draw-a-Person Test
 - d. Rohrschach, if necessary
 - e. Achievement testing, running the gamut from reading readiness through all required for six grades (Stanford is good), maintaining one system throughout is good
 - f. Gates Primary Reading Tests
 - g. California Reading and Mathematics Test

The clinic must also be equipped with instruments as follows:

1. *Telebinocular* for screening tests of vision and oral reading tests (Gray's).
2. Reading Eye for making reading graphs which reveal reading and visual disabilities and/or may show unusual reading competence.
3. Dominance (lateral) must be

tested. A full report on all testing should be issued to parents and teachers and all tests and copies of reports kept in students' folders.

A clinic indispensable

This basic clinic may seem like a tremendous and costly innovation, but if it is operated efficiently, it can easily prove its worth by saving time and preventing failure. This approach to education is scientific. Teachers are usually excellent judges of the capacities of their pupils, but with clinical testing they can begin instruction with slow pupils with objective information. Chall on page 73 of her new book, *Learning to Read: The Great Debate*, reports what she learned from reading proponents when she asked them why some children fail in reading. Practically no concrete, definite illumination on this question was received.

The diagnoses from the clinic will indicate visual disabilities (corrected or uncorrected) of the students, and in spite of the fact that some may disagree, there are visual disabilities which seriously interfere with reading. Let me ask you why severe myopia may keep a little girl from learning by the look-say or any method or why Jimmy with strabismus may reach twelve years of age reading only on second grade level?

We need to know as soon as a child enters school about his lateral dominance. If he is completely left-eyed, left-handed, left-footed, he will be like a stranger in a foreign language class if he enters kindergarten or first grade where instruction is designed for the straight right-lateral dominants. I'll never forget Benjie, a "leftie," who was sent to first grade after being a complete failure in kindergarten with a note from his teacher, "Benjie will make a first grade scholar when he learns to put his mind on it." More in need of understanding are the strepho-symbolics or pupils of mixed domi-

nance. As teachers of reading, we are not expected to be neurologists or ophthalmologists or psychoanalysts but we must be knowledgeable about vision and dominance and other definite causes of failure in learning to read by any method. Students with high IQ's may fail when the method is wrong for them.

Program for kindergarten

Consider what the kindergarten staff of this pilot school will do. Its greatest obligation is to help students gain mastery of the alphabet, for teachers in this school will *never* forget that English is an alphabet-phonetic language and will provide that fundamental information.

The kindergarten teacher will always strive for basic training in the following: development of meaningful backgrounds for later meaningful reading, extension of spoken vocabulary, accurate enunciation and pronunciation, training in left-to-right skills, *thinking* ability, ability to follow directions, and stimulation of desire to learn to read.

First grade

First grade is a crucial grade in reading instruction. My second innovation is to greatly enlarge the faculty of teachers of reading. In addition to the regular faculty found in a public school, I would add for this pilot school at least one teacher of reading for each of the first six grades, considering that this school has only one grade of 25 pupils on each level.

By and large, public schools have tried to handle the vexing problem of reading disability with one or two special teachers, sometimes trained and sometimes not. There are plans afoot in Connecticut for the state to pay tuition in private schools for reading problem students. I was horrified one day to read the following note in one

of William Buckley's columns:* "It is even now suggested by pedagogues of great reputation that it might be sound for the public schools to employ private contractors to teach the art of reading to individual students of four, five, and six."

The reading faculty

The pilot school will have a large faculty, indeed, a faculty within a faculty—a group of the most competent reading teachers available. It *must not* be a group of eager, partially trained novices, who perhaps like the idea of the pilot school—"an interesting place where I can learn a great deal!" American public school teachers must become professional enough and jealous enough of American education, to prove equal to this basic duty of teaching Americans to read.

Instruction is still the most life-giving and potent force in the classroom. Listed below are qualities the reading faculty should develop.

1. Be educated readers
2. Develop a generous and warm regard for students with great respect for their abilities
3. Be thoroughly knowledgeable about *all the skills of reading*
4. Have knowledge of testing and how to use results
5. Develop basic knowledge of alphabet and an effective phonics system (the pilot school will use the phonics method in teaching reading)
6. Possess necessary knowledge to give the left-sided students and those of mixed dominance correct *modus operandi*
7. Exhibit enthusiasm for the fundamental thinking processes in reading
8. Perfect methods of classroom instruction and be able to give encouragement and help at all times.
9. Develop private springs of inspiration which have proved to be unailing.

In addition, some of the six special teachers will have special talents. Some will be specialists in voice and oral reading; others, critics of textbooks who find best types of thinking

* Quoted from "On the Right" by William F. Buckley in the *Norwalk Hour*, January 13, 1968.

reading for each grade, some should be capable of preparing reading exercises; some will operate the training instruments such as the tachistoscope and various projectors. With such a faculty, I would be ready to launch a new and successful program.

Six teachers of reading—one for each grade would also serve in different grades for particular work. They would be interchangeable and make it possible for classes to have at least three periods of reading and related skills per day.

First grade program

What will first graders have as reading instruction? They are not reading when they enter first grade, so one period of solid phonics with a speech teacher who can teach sounds with choral exercises is indispensable. In our school one teacher introduced these exercises which fitted in with learning and reproducing sounds. Such exercises as *The Traffic Song*, *All the Animals*, and *Pippity Pop*, were memorized quickly by the students who responded with real artistry, learning voice projection at the same time. After one month of phonics the teacher said she could begin to teach oral reading.

Other possible classes for grade one would be in tachistoscopic training for quick recognition of forms and words. This training requires printing and writing words and sentences, reading as soon as possible (usually after one month of intensive phonics instruction), and listening at least one period a week. Spelling will be a part of phonics training and will be worked in everywhere. Textbooks which make sense are now in order in reading classrooms.

Reading skills a constant development

The reading curriculum of this school should be designed as a progres-

sive development. From grade to grade more mature skills should be taught. It should have such structure that the programs of the grades dovetail.

Skills in grades two and three will build on those introduced in grade one, i.e., tachistoscopic training, oral reading, speech work, textbook instruction, vocabulary building and spelling, all with their main emphasis on contribution to reading development.

Grade three will be a good time to think of teaching the skills of reading for information. This special skill should be strengthened in grades four, five, and six as school subjects grow more detailed and informative.

Rooms

With the enlarged faculty and extended reading instruction, more rooms must be available:

1. A room designed for teaching phonics and equipped with necessary charts and books. Here we will have sets of preprimers and primers to be read by pupils after eight or ten phonics lessons.
2. A room for speech and oral work equipped with tape recorder and books especially chosen for oral work on all levels.
3. A room for instrument training with flashmeter and projector for training specifically in skills of mechanics. A cupboard to hold instruments and materials.
4. A room with shelves of attractive, readable library books for all levels. Here speech teachers may meet classes for listening, training, and discussion of books and stories.
5. For grades four, five, and six, I suggest a room filled with reference books, different sets of encyclopedias where classes can be instructed in research methods and the writing of informative reports.

6. The older students will need a second room for instrument training with projector and films. Another

duty of the special reading teachers is to have some periods to devote to individual training of girls and boys with severe learning problems.

Program for upper grades

Grades 5 and 6. In these grades there should be evidence of growth in reading skills. At this stage of development, instruction should include the following training in purposes and techniques of reading: sensing the purpose of the writer, noting the structure of the writing and determining the technique appropriate to effective reading. Difficult problems may be referred to teachers of reading by teachers of other subject areas. Another duty of reading instructors in upper grades is to teach pupils *how* to read novels, poems, and short stories.

Periodic testing

Finally, in this school, standardized tests will be used four times a year to measure results of the varied and intensive work. This work can be done by the entire faculty, reports can be produced through collaboration of teachers concerned. It is well to use a single test series and its various forms so that results are comparable. The results of the tests are evaluated and studied to reinforce future instruction.

Conclusion

The pilot school as described here is a combination of methods that have been important in my corrective reading work and that I believe are usable in a public school. I am interested in the reputation of American public schools in reading instruction. Chall in her book, *Learning to Read: the Great Debate*, summarizes for us 22 systems designed to teach beginning reading. If all were successful, what a remarkable record our country would have! I believe that the straight, true, logical program is based on the alphabet and the phonetic approach to reading. In addition, we must have proper

knowledge of the youngsters, their abilities and disabilities. The teaching program must fit and direct pupil learning powers. Therefore, I suggest the clinic and its contribution to our basic knowledge of pupils.

The teaching of reading requires more skill, adaptability, and patience than any other subject. But the rewards of success with apparently reluctant learners are great. To be a part of this success and to observe the development of the forlorn and discouraged student into an entirely new individual has rewards which cannot be surpassed.

Some Aspects of Two Nonconventional Reading Programs

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A NUMBER OF DYNAMIC CHANGES have been wrought by the advent of more extensive and intensive federal participation in education. The national government's emphasis on the exemplary and the innovative has created the necessity for educators, if they wish to participate and thus acquire funds, to utilize their ingenuity and creativity in a rapidly expanding and competitive situation.

As a result of this emphasis on creative educational experimentation ideas are being given trial which, five or ten years ago, were still dreams. One of the areas within education that has felt this impact to its fullest extent is the language arts or communication skills matrix.

Because of this new governmental emphasis, a number of unique communication skills programs have become operative in various parts of the United States. Two of these rather unconventional programs, both prod-

ucts of this writer, are discussed and described in this treatise. One, tentatively scheduled to become operative in July 1968, is to be located in Durham, North Carolina, and is called The Communication Skills Laboratory Center while the other, which became operative in July 1967, is in Crewe, Virginia, and is named The Diagnostic and Reading Skills Facility.

Rationale of the communication skills laboratory center

The Communications Laboratory Center plans to utilize children who fall into the 70 to 89 intelligence quotient range who have evidenced communication problems for the purpose of instructing classroom teachers in the most effective ways of dealing with such children. An initial goal of the center is to diagnose such communication problems, that is, to diagnose specifically by pinpointing strengths and weaknesses. After such diagnoses, the children will be placed in classrooms in the center for corrective instruction. They are to receive such instruction a minimum of 25 hours per week for one academic semester.

The primary objective, however, is to offer educational opportunities to classroom teachers in the Durham County and city public school systems to observe and study methods, materials, and techniques shown by research to be most effective in instructing children classified as low or reluctant learners. As a consequence all teachers in the Durham County and city systems will be offered an opportunity to attend the center on a regular academic basis for a period of nine weeks. (Their regular classroom duties are to be assumed by a permanent core of certified teachers hired by the center.)

Rationale of the diagnostic and reading skills facility

The Diagnostic and Reading Skills

Facility concentrates on children who fall into the upper and lower thirds of the normal curve in intelligence and reading achievement. An initial goal of the center is to diagnose such communication problems; that is, to diagnose specifically by pinpointing strengths and weaknesses. After such diagnoses, the children are placed in classrooms in the Facility for corrective instruction.

In getting the program under way, it was necessary to set achievement and intelligence quotient restrictions. As a consequence, children admitted to the facility had to be functioning a minimum of one standard deviation below the average on the WISC or WAIS, or a minimum of one standard deviation above, and be either functioning a minimum of two grade levels below current grade placement or two grades above insofar as silent reading achievement was concerned. These restrictions were set in order to aid in counteracting one of the greatest bugaboos in current teaching practice, that of gearing the majority of instruction to the golden mean.

In short, the facility is intended to accomplish the following goals: 1) to serve as a remedial, corrective, and enrichment center for children at least \pm one SD in intelligence and two years above or below current grade placement in reading proficiency; 2) to serve as a center which provides for in-service training of teachers in manners of dealing with the reading problems of the average child through field based reading specialist teachers; 3) to perform as a research center designed to seek out the most effective methodology, processes, techniques and materials for general reading instruction; and 4) to serve as a demonstration center to inform and educate the larger community with respect to current educational problems as they relate to the reading act and its processes.

Category description and duties of personnel

In any instructional and supervisory program there is no substitute for good teaching; consequently, the instructional staff was classified and selected with that philosophy as the major criterion. With regard to the skills laboratory, two communication diagnosticians with a minimum of a master's degree with specialization in language arts and five years' experience were chosen. Their primary duty is to administer the following tests to eleven through sixteen years old who have been referred to the center by classroom teachers, principals, and supervisors:

- The Wechsler Intelligence Scale for Children
- Informal Reading Inventory
- Laterality and Neurological Screening
- Bender-Gestalt
- House, Tree, Person (if applicable)
- Gray Oral Reading
- Morrison-McCall Spelling Scale
- Silent Reading Achievement Tests
- Speech Test
- Ear Check with Audiometer
- Visual Check with Teichbinocular
- Various other projective tests as the need arises

Other duties of the diagnosticians include conducting child and parent interviews, traveling to various points in the United States for purposes of observation and dissemination of information, establishing and maintaining test schedules, studying new tests as they come on the market in an effort to select appropriate tests, acting as liaison between the center and schools, and serving as instructors of teachers in service.

In addition to the diagnosticians, eight communication specialists were also selected. These specialists, in addition to aiding the diagnosticians in

working with instruction problems and methodology, act as a liaison between the center and the feeder schools.

The communications specialists' major responsibility is supervision of teachers in attendance at the center and instruction of referred students in communication skills and in development of verbal proficiency. Minimum qualifications for these specialists include a bachelor's degree with special emphasis in the teaching of language arts and related areas, plus actual work in these areas, and five years' teaching experience. Specialists work with small groups of children, numbering no more than ten per group.

While the communications specialists do not use one method to the exclusion of others, an overriding factor found in all of their group work consists of using a wide variety of methods with which they are well-versed in an effort to individualize supervision and instruction as much as possible. Other duties of the specialists include attending and participating in various staff seminars and workshops, traveling to various centers and clinics in the United States for study and observation, and initiating and participating in parental and classroom teacher conferences.

The center also employs eight substitute teachers. Minimum training consists of a bachelor's degree with specialization in the study skills and a minimum of two years' experience at the elementary level. Primary duty entails the teaching of study, reading, and related skills in classrooms during the nine weeks that the regular teacher attends the Communications Laboratory Center. Other duties of the permanent substitute include parent and classroom teacher conferences, as well as general aid to the center staff.

In addition, the staff has a project director whose qualifications consist of a master's in curriculum and instruction with specialization in communica-

tion skills. Primary responsibility is to direct and coordinate all activities of the operational program, including administration, diagnostic services, therapeutic and instructional services, orientation and training of staff, in-service education of classroom teachers, and public relations.

The diagnostic and reading skills facility is composed of the same categories of personnel with essentially the same duties except that it does not have substitute teachers. Instead, it has a materials center librarian and a speech correctionist. Duties of the materials center librarian include administering the large library and acting as a consultant to pupils and staff at the facility. The speech correctionist has a master's degree with basic area and methods, student teaching, and related areas as established by the State of Virginia for certification as a speech therapist. The speech correctionist's primary duty is to work with children who evidence special problems severe enough to pose a hardship for the individual in the classroom situation. Referrals to the speech correctionist are made by the reading teachers and other members of the facility staff after appropriate diagnosis and observation. Other duties of the speech correctionist include working with the reading (communication) specialists by recommending methods, techniques, and procedures for enhancing the speech of children in their charge.

Philosophy of education

Insofar as its philosophy is concerned, both program staffs view the act of assimilating reading material as a process which consists of an individual's reaction to graphic stimuli. As such, it involves personal experiences, perceptions, higher mental processes, attitudes, interests, and values. The act of reading is viewed as an ongoing, dynamic and interacting matrix of

these factors and symbolic consociations.

The staffs are of the opinion that in order to integrate information, the individual must give meaning to a highly abstract and arbitrary symbolic system. They emphasize that the term "individual" is stressed. Emphasis is placed on this concept, since they feel that it is patently obvious that no two human beings possess exactly the same personal experiences, mode of perception, pattern of higher mental processes, or system of attitudes, values, and interests. For these reasons, the staffs believe there is no one best structured methodology for the teaching of communication skills. Carrying this reasoning further, they conclude that because the learning act is a unique combination and structuring of many functions for each individual, it follows that an eclectic and varied approach to the teaching and learning of communication skills is necessary. Subsequently this is the type of teaching-learning climate that both program staffs have established and endeavor to facilitate.

Functional description of the communications skills laboratory center

For one semester, the child will typically be transported daily to the center for all his schooling and related activities and then be returned to his home classroom. While at the center, the child will receive instruction in the basic communication skills through various content media with special emphasis being given to the development of verbal facility and basic reading skills. Programs for the children will be tailored to individual needs.

Various approaches are to be utilized as will various materials. This will be on an eclectic oriented approach with special facets of the approach being geared to each individual. Word learning and enrichment tech-

niques, as well as sentence and paragraph techniques, including visual and auditory kinesthetic, and the development of thinking and language skills will be stressed. These will include the perceptual, the associative, the problem solving, and the creative aspects. Time will also include opportunities for regular subject matter areas as well as music, physical education, art, browsing, creative activities, and classroom remedial or enrichment instruction, whichever the case may be. Individual classes will be small with no more than 10 children per class, studying at the center a minimum of 25 hours per week.

Since plans call for the employment of eight reading or communication instructors for the eight teaching rooms in the center, there will be eight classroom teachers from the two systems at any given time. Since all classroom teachers in the two systems are to be given an opportunity to attend the center, it is planned to have them attend the center on a full-time regular teaching day basis for a period of nine weeks.

The procedures and schedule to be followed by the classroom teachers while they study at the center are as follows: 1) the first week will consist of a general orientation period conducted by the center staff and a core of consultants on a permanent retainer basis which will involve discussion and instruction in growth and developmental factors, basic reading skills, development of language facility in the reluctant learner and methodologies; 2) the second and third weeks will consist of observation in the experimental classrooms at the center and discussion and instruction in materials, techniques, methodologies, and classroom management of reluctant learners; 3) the fourth and fifth weeks will consist of actual teaching in the experimental classroom by the teachers in attendance under the close supervision of the

communication instructor to whom the classroom teacher has been assigned; 4) during the sixth week, the teacher will attend various in-service sessions at the center conducted by the staff and various outside experts in the field of reading and related areas where more advanced concepts, precepts, and techniques concerning the reluctant learner will be given and interpreted; 5) during the seventh and eighth weeks, the teacher will return to the classroom she was assigned while at the center and endeavor to correlate and integrate the instruction she has received and to generalize it by actually teaching the classes under the close supervision of her communications instructor; and 6) finally, during the ninth and last week of her attendance at the center, the teacher will attempt to appraise her growth through self-evaluation, formal and informal evaluation by the center staff and various outside experts.

In general, the teacher in attendance at the center will receive instruction from both the center staff and a number of permanent consultants. This instruction will include methods of recognizing indications of readiness at all levels, ways to develop critical language skills, methods of determination of proper instructional level, and observing demonstrations involving various pupils with emphasis on the need for utilization of purposeful reading, both within the formal reading period and in the various content areas. Instruction will also be made available with respect to techniques for building adequate sight vocabulary from both a perceptual and comprehension point of view, how to develop sequential word analysis skills which would, of course, include phonetical analysis, structural analysis, context clues, dictionary skills, and methods whereby comprehension skills may be developed.

The teachers will also learn to make adjustments for individual needs which

arise from varying talents and socio-economic background; to diagnose both strengths and weaknesses; to stress purposeful activities and to guide self-direction and self-selection.

The center will also be available to interested parents and they will be encouraged to both visit and use it. In addition, professional observation will be encouraged at all time, and permission will be obtained for various teachers, not in current attendance, to visit the center for purposes of observation and informal discussion with personnel.

Various experts in the field of communication skills have been approached and have tentatively agreed to act as consultants for at least two days per month for the coming year. Their duties will include aiding and instructing the center staff, center children, and teachers in attendance through in-service sessions, individual instruction, and private counseling.

Cooperating educational agencies will participate by advising on methodology, setting up credit classes, providing instructors, tendering of consultant services, and permitting practice teachers in sociology, psychology, and education in both elementary and secondary areas, to observe and obtain some training. Cooperating libraries will participate by reserving shelves of selected books, recommending new titles, setting up story hour sessions, and offering assistance in library materials selection. Other cooperating cultural and educational agencies and institutions will participate with ideas, evaluations, contribution of services, and the establishment of supplemental enrichment programs.

In summation, a well-timed bus schedule has been arranged so that each child arrives from his home school and leaves the center on time. Classes begin at 9.10 every weekday. Eight classes are being taught simultaneously by the communications teach-

ers each weekday. Eight visiting classroom teachers there for a period of nine weeks are observing, participating, and studying methodologies, materials, and techniques for dealing with the reluctant learner. At the same time, the diagnosticians are working on individual diagnosis of potential candidates for the center. A typical day might also include interviews of parents and conferences with parents by the director and his staff while classroom teachers in attendance are given an opportunity to observe and participate on a limited basis.

To recapitulate, this project is intended to aid the regular classroom teacher to deal more adequately with the slow learner. The teachers will learn to develop and enhance communication skills of children aged 11 through 16 who have been identified as reluctant learners. In working with these students, the most appropriate methods and materials will be developed and/or identified and then properly applied in order to remedy communication problems.

The projected center will serve, then, the following purposes: a center which provides for in-service training of teachers in ways of dealing with the difficulties of the slow or reluctant learner, a remedial center for reluctant learners who have problems in the area of communications; a research center designed to seek out the most effective methodology, processes, techniques, and materials for remedial reading instruction, and as a demonstration center to inform and educate the larger community of current educational problems as they relate to the slow learner.

Functional description of the diagnostic and reading skills facility

The basic instructional mode employed with all youngsters at the facility consists of utilization of the job schedule. Specifically, the job sched-

ule is a lesson plan comprised of a series of tasks for each child. The tasks involve independent learning activities as well as provisions for common group language experiences geared to each individual's instructional and comfortable communication level. The job schedule also provides for reinforcement of correct response since many of the high interest, low difficulty, recreational and practice materials on which the independent portion of the job schedule is based have accompanying answer sheets and teacher constructed progress charts.

It is emphasized that the job schedules are merely the basic mode of instructional conveyance, not the sole one. Concomitant with the schedules, various single and groups of individuals are learning, extending, enhancing, and refining their communication skills, especially reading, through sundry methodological media. Some of these include the structural, tactile, kinesthetic, programed, all oral, all silent, linguistic, machine, aural impress, experience, creative-literary, life-time educative, and total word configuration approaches.

To clarify the organization and functioning of the center, perhaps a description of a typical day at the Diagnostic and Reading Skills Facility is also in order. Buses bring the children from their home schools to the facility and return them on an hourly schedule. Four classes are being taught simultaneously by the reading teachers within the facility and four within the feeder schools for five periods each weekday. At the same time, the reading diagnosticians are working on individual diagnoses of potential candidates for the facility. A typical day also includes interviews of parents and conferences with parents by the director and his staff while classroom teachers there for observations are given an opportunity to ob-

serve and participate on a limited basis.

Developing a Remedial Reading Center

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IN THIS DISCUSSION, focus will be centered upon the development of a professionally staffed remedial reading program within the university reading center—a program that services up to 600 students annually, of which only 20 percent are junior and senior high school students. This program tests and treats pupils from a global rather than a specific viewpoint. In other words, it is not a skills development program that tests reading skills and provides exercises to improve them. A program of this type, monopolized by kits, word analysis worksheets, rate builders, and reading pacers, shifts students from one skill to the next like a conveyor belt in an assembly line. First, it loses sight of treating the specific weaknesses that are individual to one pupil; second, it relies too heavily upon commercially packed items rather than self-selected materials; and finally, it overlooks the *fundamentals* upon which skills are developed—attitude, interest, and a desire for books.

Teaching materials are not used solely for the sake of developing skills in the remedial reading center. Children have used these materials in the past and still do not like reading. What value do books have for these children? If those of us who develop a remedial reading center show children that books make them feel excited, sad, courageous; show them places they've never been; help them to build model planes, gain a driver's permit, pass a civil service exam or the college boards, and, most important,

help them find themselves; then we can begin to develop skills. Students will have a reason for learning.

Who attends the remedial reading center?

What are some common characteristics of the remedial reader? Before we discuss how to develop our program, it is best to know whom we intend to teach.

Most of us are told that the remedial reader is a student who performs two or more years below his capacity but this tells us little. Actually, the remedial reader performs unevenly in reading skills. We realize that a poor comprehender may be a good oral reader, or a poor oral reader may be a quick problem solver. Mildred Robeck* who studied the wisc (Wechsler Intelligence Scale for Children) subtest patterns, found that poor readers could answer open-ended questions such as "Why should criminals be locked up?" This type question relies upon previously learned information. However, poor readers had difficulty answering specific questions, such as, "At 7c each what will three cigars cost?" Why? Perhaps because they must visualize and organize the sequence of information.

The primary problem of most remedial readers who attend the Fairleigh Dickenson University Reading Center is not comprehension, however. In a survey of students in the 1965 summer reading program who read orally from one to two and one-half years below grade level and had an average IQ of 115 on the wisc the major problem was perception:

difficulty associating vowel letters and sounds

ability to identify separate sounds (ku-a-tu), but not blend them

* Mildred Robeck, "IQ, Reading and the wisc," *Journal of Developmental Reading*, Winter 1964.

inability to accurately reproduce symbols and memorize them
handwriting difficulties—fragmented, disjointed letters
poor spacial order in writing
reversals of letters and word parts

By noting some of the repeated characteristics of the remedial reader as mentioned above, we are well aware that the role of the reading center's remedial program is to search for and treat, not merely the apparent reading difficulty but, the pervasive psychological, maturational, neurological, and attitudinal problems that often accompany the difficulty. This is what we mean by taking a global rather than specific viewpoint of the child.

The organization of the reading program

Incoming students are referred by schools, guidance centers, or former clients for testing and remediation. Upon the initial visit, parents are interviewed by the director regarding the type of reading difficulty and possible causes of or problems related to the difficulty. A written questionnaire accompanies the interview to guide the information to be gained.

Diagnosis occurs after interview. Each student is tested in oral reading, listening and reading comprehension, ability to discriminate sounds and symbols, memory, attention, intelligence, and sometimes sensory-motor functioning. Vision and hearing are also screened.

With three or four diagnosticians working simultaneously during a four hour period, it is possible to test three children at one time. Diagnosis takes place during the week on released school time since it is lengthy and requires the cooperation of staff who may spend up to ten hours testing, discussing, interpreting, and recommending in one individual case. A diagnostic fee in most remedial reading centers ranges from \$40 to \$75 according

to EDL's current survey of 355 reading services.

A child is selected into the remedial instructional program if his oral reading is roughly one and one half to three years below grade level and he scores within the average to superior IQ range on the WISC, Slosson, or another individual IQ test that does not require the child to read or write.

Classes for small group instruction meet either two days weekly, between two and three o'clock in the afternoon, or, more often, on Saturday mornings for two and one half hours. Some students are assigned to an older student tutor in addition to classes. Response to an older child as helper has been good, as he is not an adult authority figure.

Most university reading centers give 30 hours of instruction for 15 weeks, though students may need less or more time to complete the program. It is vital that students read beyond their grade level, not merely at it, when they leave instruction. The average group instructional fee is \$4 per hour.

The personnel

The Director. In addition to extensive experience diagnosing and teaching reading difficulties, the director is familiar with the work of the speech therapist, audiologist, neurologist, psychologist, and optometrist. His primary duty is to provide proximity between the diagnostic and teaching staff; of course this is after he has set guidelines for the testing and teaching programs, appointed staff, and worked with them in selecting materials and developing techniques.

Diagnosticians. A part-time psychologist evaluates IQ and perceptual and psychological problems. A full-time reading specialist and two assistants administer and cooperatively interpret reading tests, the Keystone Telebinocular Survey which measures visual acuity and fusion, and the audi-

ometer which determines a child's tonal range.

Auxiliary Services. These persons include any or all of those specialists listed above. Their services are used if both interview and screening indicates the need. The pediatric neurologist examines rhythmic motor responses, reflex action, hand clasp, and auditory disabilities due to blockage or nerve damage, as well as measures hormonal balance.

The Teaching Staff. This group includes from 12 to 15 part-time instructors, each with approximately eight years' experience in teaching public school reading or special education. At the secondary level it is important the instructors have either experience or background in psychology, mathematics, languages, English, or social studies, in addition to reading, since students have conceptual difficulties in these areas.

Diagnosis

There are three phases to the reading center's diagnostic program: 1) *Formal diagnosis*—what are the students' weaknesses? 2) *Observational diagnosis*—why these weaknesses? and *Peripheral diagnosis*—are there related weaknesses?

Observational diagnosis is crucial to interpreting findings: Does the student work impulsively or thoughtfully? Is he curious and aware? Is he egocentric in his thinking, not absorbing the environment? Does he read, listen, discuss? What is his attitude toward teachers, family, friends? Is he rebellious?

What does the diagnostician do with a rebellious child who sits and doesn't respond?

"Tommy, do you have sisters and brothers? An older sister? Do you ever tell her to shut up? . . . Tommy, can you push me off this chair?" He doesn't dare, because there's a wall between us that wide. "I can push you

off your chair." And you do. Then he pushes you.

Rebellion is like a boil that comes to a head and must pop before we can proceed.

What tests do we use and why?

Testing is like solving a Hitchcock mystery: the apparent clues come first, the subtleties later—and sometimes we have a surprise ending. Where do we start?

Oral Reading Tests An informal reading inventory such as The Gray Oral Reading of Paragraphs, the Gilmore, or the Slosson oral reading tests, is a composite of short paragraphs ranging in difficulty from grades one through twelve. It gives the examiner a general picture of a student's oral reading performance and an estimate of his reading grade level. The examiner records such difficulties as omitting and substituting words, confusing vowel sounds (a frequent error), and syllabication errors.

Reading Comprehension. Such standardized tests as the Gates Primary Reading Test for beginning readers, the Metropolitan, STEP, or Nelson Denny are used for two purposes: to gain a silent reading grade level and to see how the child performs when reading independently. A keen observational eye is a better instrument than a test score in identifying reasons for poor comprehension. As a student works we look for the following characteristics: 1) a poor attitude toward reading and taking tests, 2) poor comprehension due to poor word attack skills, and 3) poor ability to organize and recall. We might ask: Does he or she follow written directions, or just hurry to get through? Is he best at recalling details or general ideas?

If we examine, in conjunction with the reading comprehension test, his vocabulary subtest of the WISC to see if he is verbally fluent, or the arithmetic

subtest to note his analytical ability, we can find out more about his comprehension performance.

Perceptual Tests. Sometimes we wish to gain a more complete picture of a child's facility with symbols and sounds. To test auditory or visual discrimination, sections of the Botel Reading Inventory, the Durrell Analysis of Reading Difficulties, or the nonsense words of the Gates-McKillop Reading Diagnostic Test are used. By using nonsense words a student cannot rely upon memory but must use structural analysis.

From these tests we want to know, "Does he reverse letters or associate letters with the wrong sounds in some consistent fashion?" If he reverses letters when we dictate *man, big, pig, dog; or boy*, if his handwriting reveals space, size, and directional problems, and if he hears the wrong sound sequences, we may administer visual and auditory perception tests.

Visual Perception Tests. The Bender Visual Motor Gestalt and the Benton Visual Retention Tests are frequently used in the reading center. The Bender shows the ability to see relationships between figure size, distance, and position. Does the child see only parts of these figures or the gestalt? The Benton tests the student's ability to recall shapes and their relationships with other shapes from memory. Finally, the coding subtest of the WISC measures speed of recognizing and memorizing symbols.

Auditory Perception Tests. The first auditory difficulty may be that of distinguishing between *pin* and *pen* on the Wepman Auditory Test. Second, a child may not identify the number of sounds in a syllable, even after the examiner claps the number as he says the word. A third difficulty may be the confusion, the placement of the sounds. In the word *design*, a student may hear the second sound first because it is loudest. When children have such

difficulties, we must teach them to distinguish gross sound discriminations before teaching the fine ones.

Sensory-motor Tests. A few remedial readers show neurological difficulty through slurred speech; poor handclasp; walking, skipping, and hopping facility; and confusion of left and right sides.

What do we do with information from perceptual tests?

Rather than drill a child in word blending, if he confuses sound sequences, it makes more sense to teach him to hear sound sequences by counting the number of rhythmic taps in a beat before listening to the number and sounds of letters. If a child lacks memory for symbols, start teaching him memory for simple designs—circles or squares. Then move to letters. If the child has had drill in word recognition, he simply cannot handle the finer discriminations and great variety of shapes presented to him.

What are some critical problems in diagnosing?

Often, pertinent test information is lost or misinterpreted because 1) diagnosis is not conducted by the child's instructor, since instructors work only part-time and are teaching elsewhere when the diagnosis is given, and 2) instructors often lack the experience and ingenuity in constructing a teaching program based upon the diagnosis.

One instructor may overlook the statement in the diagnostic report. "Jimmy does not hear word endings, he confuses *curb* with *curve*, *lift* with *live* and omits word endings when he speaks."

Another instructor may read this information and use it to teach "cued speech."

"Jimmy, place your hand on my mouth. Listen! . . . feel my lips say 'curve,' 'curh.' Now you say it . . . your lips. Is there a difference?"

To prevent the instructor from overlooking vital information, it is crucial that the diagnostic and auxiliary staff discuss the diagnostic findings with the instructor. Parents should be invited to attend. This is why I said earlier that the primary role of the director is to provide close cooperation between the diagnostic and teaching staff.

Developing the instructional program

Personally, I prefer small group instruction to tutorial help. Students are not mere recipients of instruction. We know how important interaction is between students. An important part of the remedial instruction is to allow the child to assume a role in the group as doer, perceiver, leader, follower of directions, strategic planner.

For example, when we observe a child to be overdependent upon the teacher's approval or disapproval, we may deprive him of this support and force him to make decisions and evaluate himself.

Tutoring may be a time-saver when a student is receptive to instruction and willing to work independently.

Teaching procedures

Building interest is fundamental to building skills. Though poor readers may never learn to grow "quietly passionate" over books, as John Ciardi terms it, our primary purpose is to create a curiosity for books.

Part of the weekly instruction should always include free reading and being read to. Up through grade four children should meet the compassionate spider of *Charlotte's Web* who heroically saves Wilbur the pig from slaughter. They should hear the adventures of mole, toad, and beaver in *Wind and the Willows*.

Upper grade and high school pupils will enjoy *Caves of the Great Hunters*, *Lilies of the Field*, and the Fawcett and Dell magazine publications: *The Science Experimenter*, *Motorcycles*, *Beauty Guide*, and *Hair Style*.

Some teachers hesitate to use trade books and magazines to teach comprehension because they think there must be detailed questions at the end of each selection. Sometimes we forget to let the children do most of the talking about the book, and we pump them for answers instead. Let each child feel the pleasure and success of contributing his *own* information—the information he found. It may be about the story's plot or it may be something that interested him but seemed remote to us.

Comprehension Skills. In addition to free reading, we need to help the child structure material. Sentence interpretation is a major difficulty among poor readers. Linguists Paul Roberts, Robert Pooley, and Carl Lefevre stress the following:

1. *Teaching the kernel of the sentence.* To see some organization to a sentence, a pupil can first identify the kernel, "John cries;" then he can look for the peripheral part, "Anguished, John cries for help."

2. *Teaching kernel ideas.* SRA's *Reading For Understanding* is an excellent device at all levels to help students identify words within sentences to help them grasp the idea of a passage.

At high school level pupils bring their texts to class where attention is given to *how* the chapter is structured and *what* words or phrases signal an idea to come. They take notes from the tape. The instructor outlines with them on the board and discusses organization.

Word Recognition Skills. Sylvia Ashton Warner's stimulating book, *Teacher*, is read by all instructors at the Fairleigh Dickenson Reading Clinic. It stresses that we use the child's vocabulary. The method appears very effective with the passive child.

"Tommy, do you have a secret word? Whisper it to me!" He may

say "gangster" or "a crocodile will eat you up!" You write it on the board for the others to guess. You then write it on cardboard for Tommy to keep—unless he forgets it. Then you tip it up. It is not his word. The words he does keep you can cut into syllables and shuffle or use to write sentences and paragraphs.

Strengthening Perceptual Skills. We have experienced using kinesthetic teaching with perceptually disfunctioning children. At the reading center we make this a challenge. Children use their fingers, toes, and elbows to trace and sound out letters in chalk, dust, or sand. They close their eyes and write with the pencil between their teeth.

Though we may use the Winterhaven and Frostig materials in part, we also copy geometric designs from memory and sometimes feel the sound vibrations of such words as *mat* and *monster* when we speak into a blown balloon. All of this aids discrimination.

School Clinics

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THE IDEA OF A CLINIC for remedial instruction in reading is not new. Nila Banton Smith (4) points out

The first clinic for remedial instruction which came to the attention of the writer was established in 1921 at the University of California, Los Angeles. Grace M. Fernald who had previously been working with deficient readers was eventually given a room in the University Training School. From this developed The Clinic School which later became part of the University Psychology Department. Other universities had not yet developed special reading clinics such as those that became numerous in the period from 1950-1965.

Some public school systems, however, were laying the groundwork for later developments. Gray (1) reported in 1922 as follows:

"In order to provide classroom teachers with expert help, several cities have established educational clinics where detailed diagnostic studies are made and have also provided a special room where remedial instruction is given."

Early in 1935 Gray (2) wrote: "Because the needs of many poor readers cannot be determined readily through classroom diagnosis, institutions and school systems in increasing numbers are establishing educational clinics. These clinics are rendering a very valuable service as shown by the work of Baker and Leland in Detroit, Betts in Shaker Heights, Ohio, and Witty at Northwestern University."

The term "clinic" was still used loosely in the period 1935-1940 to cover many situations, psychological and educational. However, having reading clinics in the public schools evidently was the beginning of a trend, according to Smith (5), in this period. A glimpse of the status of reading clinics can be obtained by this quotation which appears in the Thirty-Sixth Yearbook, Part I, of the *National Society for the Study of Education*, published in 1937 (3).

"The tendency to establish reading clinics for intensive study of serious cases of reading disability is one of the newer developments associated with improved supervision of reading. In one city at least three reading clinics have been established. In another city remedial classes under cadet teachers have been organized in junior high schools and senior high schools; furthermore, reading clinics for elementary schools and junior high schools have been established and provisions have been made for training teachers in remedial reading. The practices in these cities illustrate the tendency to make the best possible use of clinical methods of diagnosis in the discovery of causes of reading disabilities."

[Smith continues (6).] It is interesting to note that the term *Reading Clinics* had become so popular by 1942 and so many articles were being written about this subject that this phrase was given a separate heading under the general heading of *Reading* in the classification of articles listed in the *Educational Index*.

And so it can readily be seen that we have 47 years of proud tradition behind us on the study of reading fail-

ure. No public school administrator need present his plan to establish a reading clinic in his school system as a new or innovative plan: indeed, thousands of pupils and clinicians have already blazed the trail, and the parched bones of many "innovative" ideas bear mute testimony to our dauntless spirit in this regard.

Functions of clinics

School clinics have always defined their major responsibility as providing service to their client group however those groups have been defined. This is in contrast to university reading clinics which usually define their major responsibility as clinician training.

The service aspect of school clinics usually has two facets: diagnosis and treatment. It is generally agreed that effective treatment of any significant reading problem is based upon a sound diagnosis because no two cases are precisely the same. Therefore, the diagnostic component of the clinic operation will be reviewed first.

Diagnosis

Most reading authorities subscribe to a multiple causation theory of reading disability. Therefore most reading clinicians base their initial diagnosis on a battery of performance tests which reflect the client's ability, at a given moment in time, to function in a variety of ways both educationally and psychologically. The educational or pedagogical diagnosis is most commonly encountered in school clinics. An educational diagnosis is designed to evaluate the pupil's ability to perform school-like tasks, and it describes in greater or lesser detail the developmental level the pupil has attained in oral reading, silent reading, word recognition, comprehension, spelling and phonics. It is the dual purpose of this phase of the diagnostic procedure to define the extent of the reading prob-

lem in terms of the degree of retardation in reading ability compared to a peer group of like ability and to determine a place at which remedial instruction may profitably begin. A related purpose is to pinpoint areas of strength and weakness in the client's reading performance so that the remediation process can be carried out efficiently; that is, to avoid excessive reteaching of skills over which the client already has effective control.

A thorough educational diagnosis with a written report of results should be considered the first step in the school reading clinic process, and it should be considered the bare minimum required before treatment or remediation efforts begin. Unfortunately, there are those persons who call themselves clinicians who work in places called clinics where no diagnostic evaluation precedes the remediation phase. In such situations, all pupils receive the same treatment, probably because the clinician only knows one remedial procedure. Situations like this ought not to be allowed to exist in public schools. The best that can be said for such practices is that the university applied remedy will cure some, but it will kill or cripple many others.

School clinics in many instances have as a part of their diagnostic process a psychological evaluation. The psychological evaluation usually includes: 1) an evaluation of intellectual ability (individual IQ tests are deemed helpful because they are orally administered and do not require the subject to read); 2) emotional adjustment; 3) background data on the client (family history, medical history, school history, teacher and parent reports); 4) perceptual-motor evaluation; 5) learning tests (including associative-learning ability tests, learning rate tests, and tests purporting to evaluate learning ability in the various sensory modes); and 6) memory functions—memory

memory for directions and memory for school-like learnings—such as oral spelling and digits.

Reading clinics in some schools are equipped to screen pupils for undetected physical defects in the areas of vision, hearing, coordination and laterality. The purpose of this screening is not to put the school in the medical business. It is intended to guide parents to medical specialists who can help children who have these problems to adjust to them and thus function more normally in school. Neither is the purpose of this screening to explain educational problems pupils have. It is a widely-held myth that reading problems are "caused" by vision problems, inadequate hearing, poor coordination, or confused laterality or directionality. There seems to be no single defect which by itself can be an insuperable obstacle to reading. Many normal readers show a wide range of abnormalities of vision, hearing, laterality and emotional maladjustment. Deaf children can learn to read, blind children can learn to read braille, and even imbeciles can now be taught to read.

The principle which most efficient clinicians use in selecting their diagnostic tests is that of using only the tests which will enable the clinician to understand the reading problem and its etiology. For example, there is no point in administering extensive diagnostic tests of spelling and writing ability if the clinician has already determined that the client's reading ability is at or below the first grade level. By the same token, if there are no negative diagnostic indicators which would account for why a client had been unsuccessful in profiting from formal reading instruction in the areas of visual and auditory discrimination, and intellectual ability appears normal, the clinician may want to test further in the areas of learning and memory abilities and emotional adjustment. Many

clinicians have adopted a more or less standard diagnostic procedure which they impose on all clients. This practice in light of current research findings is a wasteful one when time and efficiency are applied as criteria in evaluation of clinical practice. If the primary function of the school reading clinic is to provide maximum service per dollar of support, then time and efficiency must be adopted as important criteria in the further evaluation of clinical practice.

Remediation procedures

As most persons who have received training in a university child study or reading clinic can attest, the process of diagnosis of a child's problem can become a fascinating game which can become thought of as an end in itself rather than a means to an end. But, as any clinician knows, the quality of a clinic which purports to deal with reading problems is best judged by the number of pupils it cures of those reading problems. The best advertisement and public relations promotion a school clinic can get is a group of pupils who are walking around the school as cured ex-cases. Many will agree that the most elaborate and sophisticated diagnosis is useless unless the means are available in the clinical setting to act upon the findings of the diagnosis.

In my view, the aspect of the application of remedial procedures is the area in which we encounter the most frustration and in which we are least successful concerning the operation of school clinics today.

Much of the difficulty can be traced to the twin causes of lack of understanding on the part of decision makers in administrative positions about clinical reading, and poor planning based upon unrealistic expectations of what a reading clinic can do in a school setting.

The first thing which most adminis-

trators should be told and should understand is that a clinic of any kind in a public school is rather like a luxury item. That is to say, school will keep without clinics, but they are certainly nice to have if you can afford them. Many administrators would much rather take visitors to see a place like a special clinic than an ordinary classroom, for example, probably because it appears as if things are being done and it gives the public the impression that the school really is concerned with the needs of individual pupils.

Reading clinics are expensive. They are expensive not only from the point of view of the initial investment required to start them, but they require yearly budget support of increasing proportions due to increased services, demands and costs, and they are extremely expensive when figured on a per pupil basis. A modest per pupil estimate of cost would be \$750.00 for a 36-week school year in a rather low-level school clinic to as high as \$1500.00 per pupil for a 36-week school year in more plush surroundings. The figures cited reflect what our studies of clinic costs tell us ought to be budgeted for clinic support by the supporting unit. One of the most critical problems we face is under-financing. If a clinic is run properly, several principles should be observed in its operation:

1. The clinic should be equipped with hardware and software which could be utilized by the clinician in the treatment of any type of case, and should be delimited only by the limit of the knowledge of the clinician.

2. Amount of clinic service should be extended to pupils on the basis of the degree of need for the service. This means that the most severely disabled readers should receive the most clinic service. Our studies indicate that pupils with certain types of reading difficulties need a minimum of four

hours of individual remedial reading instruction per week in order to profit at all, and they need this degree of attention over long periods of time—sometimes for several years. On the other hand, some pupils can be remediated in as little as four weeks with only one or two visits per week in small group sessions. It should be noted that when more of the clinician's time is spent with individuals, less is available for small group instruction. Here the operation becomes a problem of priorities, which leads to the next principle.

3. Pupils should be *referred*, not *assigned* to the reading clinic program. It should be assumed by administrators that the clinician is the most qualified person to determine which of the prospective clients should be served by the clinic and which should not be served, and also among those to be served, the clinician should be the person who determines who gets served first. This contention is based on the assumption that the administrator, under whose jurisdiction the clinic falls, and the clinician have reached an understanding of the objectives of the clinic program *before* the doors open for business. If the administrator views the clinic as the facility which will solve all the reading problems in his school, he is likely to be expecting the clinician to be dealing with *numbers* of pupils and his criterion will be *how many* clients are served in this facility. On the other hand, the clinician may want to operate the clinic so that the emphasis is upon careful, individualized, highly specific and time-consuming techniques of remediation. The sad fact is that it has been our experience in consulting with school personnel involved with reading clinics that they often do not share similar views on what objectives clinics should embrace. We have often advised, under these circumstances, that the clinic operation be suspended until both parties

are able to agree on a set of objectives.

In this situation it seems that both the administrator who is concerned with numbers of clients served, and the clinician who is willing to spend blocks of time with only a few clients are both at least partially wrong in the positions they hold. A reading clinic can in no way be equated with or substituted for a remedial reading program. It seems to me that administrators must decide what they want, and they should not be allowed by professionals in reading to be confused about the difference between a remedial reading program and a reading clinic operation. It has been wisely suggested by some that the best cases for a school reading clinic to accept are those pupils who are not profiting from the corrective or remedial reading program already in effect. The reading clinician, on the other hand, must see that it is important to adapt the clinic operation to the specific requirements of the public school. A training clinic located in a college or university reading department cannot be used as a model for a service clinic in a public school. Important differences exist in their objectives. Yet, many clinicians are frustrated in their work because they are not aware of these differences.

There is no more important question than "Who should be served by school reading clinics?" The answer to the question influences the outlook of the instructional staff towards the clinic program. If the administrator and the clinician do not share the same views about what the reading clinic's objectives are, they are likely to give teachers different pictures of the type of student who should be referred to the reading clinic. In instances where the clinic program has been poorly articulated for the teachers, large numbers of pupils referred for reading service turn out to be slow learners who are not retarded in reading when their reading achievement scores are adjusted for

their mental ability. In other instances where knowledgeable clinicians make good decisions about the client group (and, incidentally, send the slow learners back to the teacher) teachers are often heard to say, "Oh, she only takes the good ones. I could have helped so and so myself."

There are really two aspects of the referral system: 1) Agreement among clinicians, administrators and teachers on what the goals of the reading clinic program are; and 2) The effective articulation of the clinic program, including the activities and progress of each pupil periodically, by the clinician for the benefit of the teachers.

It would be well to conclude by suggesting a few new directions school reading clinics might investigate for future development.

Broadening the scope of the school reading clinic. Lack of successful reading experiences may be viewed as symptomatic or causative of other problems the pupil has depending upon the discipline from which one approaches the pupil. It seems that where possible, school clinic personnel should ask for multidisciplinary help on a case where unknown or poorly understood factors complicate the remediation task. For example, we have found great cooperation from the ophthalmological physicians' group in Kansas City in our efforts to help a child who had an undetected case of nystagmus. These men contributed lenses, sight-saving material, and consultative support for our efforts. We have had similar cooperation from pediatricians, psychiatrists, social agencies, and church groups.

I am not suggesting here that the school clinic needs to buy service of a multidisciplinary type. Our experience is that forced-togetherness of specialists often has painful consequences. Rather, we suggest seeking voluntary help from the professional groups mentioned. We have found many useful

persons in the community who want to find ways to serve the schools. Everybody asks professional groups for money, but it is the expertise they can offer us which is our most valuable resource.

Research. Eighty-five percent of the clinic cases referred to us from surrounding Kansas City school systems are cured of their reading problems by simple reteaching of basic skills. These pupils get better without the use of exotic remedial techniques, and they often are able to attain enough skill development in one semester to enable them to participate in regular classroom reading activities successfully. This suggests that, if the pupil had been approached properly concerning reading from the beginning, he would not have become a disabled reader. This further suggests that the school system's reading program may be creating reading problems while the clinic is trying to cure them. It is in this area, the study of the origin of reading problems referred to the school clinic, where the school system may correct or adjust itself and its programs in such a way to prevent reading problems from occurring in the first place.

Training. The school clinic can serve as a good place for "advanced practice teaching" for teachers in the school system who are interested in helping slow or reluctant readers, in their own classrooms, or for the purpose of training new clinicians. By asking the principal to budget an extra substitute teacher's pay for one-half day for a full year, about eight teachers can be sent to the school reading clinic to observe and participate with the clinician in learning her strategies and techniques, learning about materials and in learning all the appropriate diagnostic procedures for use in her own classroom.

The school clinic, in order to justify its extremely high cost, must search

for ways to make itself valuable to the school system in ways which extend beyond the walls of the clinic itself.

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A Reading Center for Disabled Readers

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THE READING CENTER in White Plains is one component of our reading improvement program under Title I, ESEA, which is, in turn, an extension of the developmental reading program. Since the total program is being continually reassessed, and since any segment must be viewed in the context of the total program, some background information is needed to explain the evolution of the present program as well as possible plans for the future.

Background

The city of White Plains is an urban-suburban community in Westchester County, twenty-three miles north of Midtown Manhattan. The population of 50,485 (1960) includes a wide socioeconomic cross section. Of an estimated 10,737 school-age children residing in White Plains, approximately 19.5 percent come from low income and welfare families.

The public school system consists of

ten elementary schools, three junior high schools, and one senior high school. In addition there are seven nonpublic schools in White Plains.

Prior to the inception of the Elementary-Secondary Education Act in 1965, reading had been a major focus of the White Plains professional staff. A developmental reading program, K-12, had been cooperatively developed by the staff and needs had been identified. In addition, elementary and secondary teachers had participated in a series of in-service workshops directed toward the diagnosis and remediation of reading difficulties.

When Title I funds became available current standardized test results as well as teacher and parent questionnaires indicated that the reading of children who had not responded to conventional classroom approaches, was still a major area of concern.

Of those children in grades four through nine who, according to standardized testing, were reading one to more than three years below grade level, seventy percent were from families designated by the Community Action Agency as low income.

Social workers, psychologists, and other staff members, have observed that many of these educationally disadvantaged children have a negative self image and negative attitude toward school. It is felt that these negative feelings and attitudes are in part a result of their frustration and failure in school work.

In view of the above findings, a decision was made to use all of the Title I funds allocated to White Plains for the improvement of reading and other language arts.

The program was based on the belief and hope that children working in small groups in a supportive setting, with instruction geared to their individual needs and levels, would feel free to speak, learn to listen, and show good improvement in reading and

other language arts. This, in turn, should enable them to function more successfully in other academic areas and result in improved self-image and attitude toward education. Since, as a result of The White Plains Racial Balance Plan each school has a share of educationally deprived Negro children, the program should also contribute toward more satisfactory integration.

Program content

The program has three components:

1. *The Reading Center* for children experiencing severe reading disabilities. These children, assigned to groups of eight to ten according to their instructional reading level and age, meet five days a week, two hours and fifteen minutes a day.

2. *Corrective and remedial reading in the schools* is provided for children with less severe disabilities or children who seem to be unable to profit from an intensive program of instruction. Most of the teachers in the program spend one-half day at the center and one-half day in the public and non-public schools teaching groups of three to five children, three to five times a week for thirty to forty minute periods. This instruction is in addition to regular reading instruction in the classrooms.

Teachers in the schools provide reinforcement and support for children returning to the schools from the center. They also recommend to the reading center children who need a more intensive program.

3. *In-service training.* The director has worked with the teachers in the program to help prepare them for more intensive work with classroom teachers. In the meantime the teachers and the director have been participating in faculty meetings devoted to reading (held both at the center and in the schools), working with teachers through informal contacts concerning individuals and small groups of chil-

dren and generally making themselves available and known as helpful resources. Somewhat more formal and intensified work with teachers is being planned for next year.

Selection of students

Initially the program was designed to service pupils in grades four through twelve. Additional assistance for teachers and children at the primary level was provided in the developmental reading organization.

The following basic criteria are observed in selecting pupils for the program: First, children are selected who have about average or above average intelligence with a discrepancy between general mental abilities and reading level as estimated by a test free from a reading component; ability to understand materials read to them; success in nonreading fields; and data on reading progress from formal and informal testing programs, curriculum records, observations and recommendations from teachers, principals, psychologists, and social workers. Second, priority is given to pupils who have reading disability as their major problem. During the second year of the program, preference was given to children who had been in the program and who were recommended to receive continued special instruction in their schools or at the reading center.

During the initial screening in the spring of 1966, all public and non-public school pupils in grades four through twelve who were recommended by any member of the professional staff as needing special reading help were given individual diagnostic reading tests. Approximately 1,200 pupils were tested. The basic informal devices used were graded word lists and informal reading and listening inventories. These were supplemented by informal tests of phonic knowledge and auditory and visual discrimination. Findings concerning each pupil's in-

structional level and specific reading needs were summarized on a form which included background information and recommendations for further study or remediation. In cases where the records indicated that limited general intelligence might be an important contributing factor, individual wisc's were administered and the results carefully studied, before final recommendations were made.

Of the 1200 students tested, 354 in grades four through nine and 118 in grades ten through twelve were evaluated as reading at least two or more years below their expectancy level. A total of 488 were reading one to two years below.

The second year, the program was extended to include children in second and third grades. At the high school level (grades ten through twelve), preference was given to tenth grade students. This was in keeping with projected long-range plans for earlier diagnosis, correction, and prevention.

Ninety to one hundred students selected as described above from among those pupils in grades two through nine, reading approximately two or more years below their expectancy level are assigned to the reading center. Classes for approximately forty students in grades ten through twelve are held at the high school. Corrective and some remedial reading cases receive small group instruction at their own schools.

The final selection of students to attend the reading center is made by the director of the reading center and the principal of each school, in consultation with members of the pupil personnel staff and the helping teachers. Pupils and the parents of pupils selected are contacted by the principal, school social worker, or school psychologist prior to the opening of school. The purpose of this contact is to ascertain and, perhaps, stimulate interest, motivation, and cooperation.

This is an important factor in the final selection, particularly of the older students.

Organization of the reading center

The program is staffed with twelve reading teachers, thirty unpaid volunteers, a part-time psychologist, a clerk-typist, and a director. Nine of the teachers spend one-half day at the reading center and one-half day in the schools. This arrangement was originally a democratic solution to the problem that all but one teacher asked to be assigned to the reading center. However, the opportunities for professional development and communication provided by this arrangement have been most advantageous.

The main segment of the reading center is located in a large, well maintained elementary and junior high school. Seven full-sized classrooms and an office are used for reading center activities. The teachers at the reading center teach reading, other language arts, and study skills for two hours and fifteen minutes, five days a week, to groups of eight to ten children. The children are grouped according to reading levels, then age. The children who attend the morning session are picked up by bus near their homes and delivered to the center by 9:00 a.m. They are returned to their schools in time for lunch at school. The afternoon children are picked up after lunch and returned after school to locations near their homes.

Whenever possible, the local school programs are arranged so that the children who attend the reading center will be able to participate in art, music, and physical education. They must be scheduled for math in their home schools. Arrangements are also made for reading center students to be included in special activities (trips, parties, athletic events, special assembly programs) at their schools. All of the students are given administrative

credit for any subjects, except mathematics, that they miss as a result of attending the reading center.

Teachers at the reading center are assisted by thirty unpaid volunteers. Most volunteers are at the center two one-half days each week. They work directly with the children, under the direction of the teacher, providing additional individual attention, help with reading and guidance in their independent work.

Each student at the reading center is given a psychological evaluation by the reading center psychologist or one of the psychologists assigned to the school system. Services of the social worker, the home-school counselor, and the health officer are effected through the home school.

An important objective of the program is to increase the involvement of parents in the learning experiences of their children. Before or immediately after the opening of school, the director contacts the parents of students in grades three through nine to acquaint them with the objectives of the program, explain why their child was selected, and explain the importance of their involvement. Early in the school year parents are invited to attend an evening coffee hour at the center and to meet with their child's teacher. The director and staff send written invitations to parents, the children write letters, and each teacher calls or personally contacts the parents of her children. Transportation is provided when necessary.

The equivalent of one full-time teacher is assigned to the high school center. During the 1966-67 school year, this teacher taught reading, writing, and study skills to two groups of eight to ten students who had severe reading problems (instructional levels second to fifth grade) two consecutive fifty-minute periods, five days a week. In addition, the teacher taught two "active" groups, one at White

Plains High School and one at a parochial high school, one period a day, five days a week. This year six groups of six to ten predominantly tenth grade students are receiving instruction in reading and study skills one fifty-minute period a day, five days a week. At the beginning of the year, the instructional reading levels of these students ranged from fifth to eighth grade. Students assigned to the reading classes receive credit for English.

Instructional procedures for secondary school students

The basic therapeutic and instructional principles which are observed by the teachers of older students differ from those followed by teachers of elementary students in degree and emphasis rather than kind. However, since this discussion is concerned with a reading center for secondary students, the rest of this paper will be more directly related to the procedures followed in classes for children in grades six through eleven.

I asked one of our teachers who works very successfully with junior high age pupils, "How do you do it?" She answered, "First of all, you have to establish a rapport with the kids. You have to like them, be interested in them as human beings, understand their frustrations. You have to have faith that you can help them, make them aware of their needs and abilities by involving them in the diagnosis and evaluation. You convince them that they can learn by honest praise, encouragement, and support."

The basic therapeutic principles embodied in the above comments, important in all teaching, are vital when working with pupils who have experienced years of frustration and failure. The climate created by members of a staff, who live and work by these principles is a major element in the success we have had.

Basic techniques

The Fernald approach using visual, auditory, kinesthetic, tactile, in an analytic method. In general, the words to be studied are those the pupils encounter in their reading or need for their individual writing. The Fernald approach combines training in many skills through a method that older students will understand and accept. It provides training in visual and auditory association, sequencing, and memory. Skill in phonics and syllabication can be acquired without formal drill lessons.

The Gillingham approach, using visual, auditory, kinesthetic, tactile, in a synthetic method. Some pupils who are essentially beginning readers have responded to the logic and security of starting with small basic units, thoroughly reinforced. Linguistic and programed readers have been useful as materials for this approach.

Instructional principles

Pupils are taught at their instructional level. Whenever possible high-interest, low-vocabulary materials are used. However, particularly at lower levels, it is difficult or impossible to find enough high-interest material to provide the much needed repetition and reinforcement. When this is explained, the pupils accept basal readers and linguistic materials as a means to an end, probably because they feel success and growth as they proceed from one level to the next.

Instruction is individualized. The most successful technique for each pupil is suggested by diagnostic testing and confirmed through trial and error. Volunteers make a great contribution, helping to provide the individual attention, reassurance, and interest these students need. Various audiovisual aids are used for motivation, practice, and reinforcement. Available equipment includes typewriters, tape readers, controlled readers, Craig read-

ers, filmstrip and motion picture projectors, tachistoscopes, the Flash-X, and language masters. The machines are operated independently by the pupils as the teachers work with individuals or very small groups.

All sensory pathways are used. A great deal of writing, through dictation, copying, tracing, tachistoscopic devices, as well as creative and expository writing, is done in connection with all approaches.

Continuous reinforcement and practice is given through a great deal of reading of supplementary and trade books, individually and in pairs.

The daily program is structured by the teacher in relation to the needs of the class. Since the students are involved in their own ongoing evaluation, few questions are raised. Initially the activities are short and varied. As the year progresses, the students are able and willing to concentrate for longer periods.

The curriculum

The curriculum at the reading center includes the following:

1. Basic reading skills as described above.
2. Reading in the content areas and study skills—including outlining, summarizing, recall, study of maps, charts, and graphs. Initially, materials at the pupil's instructional levels are used. Whenever possible, the subject matter is correlated with topics they are studying in their schools. As the students approach grade level in reading, their own textbooks are used.
3. Writing, including organization, content, spelling, and mechanics.

Progress and plans for the future

We have not discovered a revolutionary new approach. We have structured a situation where we can teach "nearly as well as we know how."

Enthusiastic, warm, competent teachers have the space, materials, equipment, class size, assistance, and desire to individualize instruction.

According to standardized testing and informal instructional levels, the mean gain for secondary students, the first full year of the program was two years. Informal inventories (standardized tests will be administered in June) indicate that the second year's gains will at least equal those of the first year. However, the range was wide.

A formal follow-up study is being planned. An informal survey was made of thirty students in grades seven through nine who have been in the program for two years. Twenty-five of these pupils have made approximately four to five years' gain in reading. Of thirteen who are now reading at sixth grade level or above, ten are doing at least average work in their regular classrooms. Twelve of these pupils are now literate (reading at approximately fifth grade level). Pupils have made dramatic progress in reading but are still functioning well below grade level. The total instructional program for these children is being carefully studied.

Five pupils have made very slow progress. For these children, teaching, "as well as we know how" hasn't been enough.

For White Plains at this time, the effects of the program have been positive. Many students have improved their reading and other language skills, some dramatically. We are developing an experienced, informed staff of reading teachers who are becoming "known" as helpful resources. More reading teachers at the elementary level and some at the junior high level are being asked to participate in planning stronger preventive, developmental, and corrective reading programs in the rooms. We are now considering

for next year, a demonstration-workshop for high school teachers.

Hopefully, as the total instructional program evolves, the individual needs of most students can be met within the regular school setting. As part of the total program, our immediate plans center around two areas: increased communication with classroom teachers, and continued search for more specific diagnostic and remedial procedures for reaching those pupils who are progressing very slowly through traditionally sound remedial teaching. We are in the process of adapting some techniques that have been used with younger children for training in visual and auditory perception for possible use with secondary level students.

Reading Clinics

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IN A DISCUSSION OF READING CLINICS as a vehicle through which disabled readers are helped it would seem to be desirable first to look at the various kinds of reading clinics. Following this, we will examine the functions of reading clinics and finally, outline the basic considerations in developing a reading clinic.

First, let us define the term "reading clinic" so that there will be a common base of understanding from which to proceed. As used in this paper, reading clinic will be considered an institution whose primary function is to diagnose reading disability and prescribe and provide remediation.

Principally, there are three kinds of reading clinics: the private reading clinic, the public school reading clinic, and the university reading clinic. While one of the long range goals or objectives of each type is to help disabled readers, there are other immedi-

ate, short term, and long range objectives which will differ among them.

The private reading clinics are usually developed by individuals or groups of individuals who have skills and competencies they wish to sell. While one of their primary objectives is pecuniary gain, this within itself is not objectionable. Even though no man lives by bread alone, neither does he live long without it. At the present time there are no legal requirements as to proof of the competency of individuals who wish to establish a private reading clinic. There are abounding throughout our land "dyslexia clinics" operated by anyone who can spell the word and staffed by "clinicians" who have never had any course work relating to reading or reading skills.

Many times the teaching of reading is incorporated in an educational evaluation clinic or center. Again in this situation, it is not required that those who operate or serve as clinicians be certified as reading specialists or clinicians.

However, there are a number, and it is growing, of competent, trained, and certified people who feel that they prefer to offer their services on an individual and private basis. These people are professional in their relationships with clients. They make no wild promises about the results of special techniques such as patterning, walking boards, or other attention getting devices. These private clinics provide an opportunity for persons who may prefer to seek help from a private source rather than from a public school or university clinic.

There should be no objection to private reading clinics but there should be a way developed to assure that those who seek and pay for services for reading disabilities are diagnosed and treated by professionally trained reading personnel.

The public school reading clinic is becoming a fixture in many school sys-

tems. The St. Louis school system provides the most outstanding example of a pioneer effort in the establishment of a public school reading clinic in the mid-1940's. The description of the organizational pattern and procedures in clinical practice are still used as guidelines for school systems in setting up reading clinics.

Public school clinics may vary in size or in scope of activities. Some school systems set up a reading clinic as a unit almost unto itself, while others include it in a center with access to other kinds of special help. In recent years, with the advent of Title I and Title III funds, public school reading clinics have multiplied and expanded. Innovative concepts in clinical services have been developed. One that seems to hold a great deal of promise is the mobile reading clinic. Mobile diagnostic units have been set up and are in use in several school systems to provide services to students who would not be reached otherwise. This eliminates the need for providing transportation for students to a centralized point and also takes care of the ever present problem of space for clinical services.

More and more public schools are approaching learning disabilities from the multidisciplinary viewpoint so that, instead of reading clinics, guidance clinics, or psychological clinics, we have child study centers which incorporate all these services. In settings of this type the skills of the various clinical people are incorporated to give clinicians a better look at the total child.

A number of states have developed certification requirements for reading specialists and clinicians. This helps to insure that properly trained professional people will be working with children referred for reading disabilities. Most of our states are moving toward establishing certification re-

quirements for reading specialists and clinicians.

The university or college reading clinic may be classified in two large categories. It may be part of the institution's training program in teacher education and offer services to elementary and secondary school children or it may be offering clinical services to students of the university who have reading and study problems. It may be a combination of both. Since the second function is not as relevant to the theme of these discussions, we will consider the university reading clinic as having three primary objectives: to train reading teachers, specialists and clinicians; to promote research in the teaching of reading and in causes, prevention and remediation of reading disabilities; and to provide services for disabled readers.

In examining the functions of reading clinics, it is observed again that private, public school, and university reading clinics have at least one function in common. All three have the ultimate objective of helping disabled readers. Other objectives may be divergent but without this basic one that is no reason for the existence of any reading clinic. Another function of a reading clinic is to provide classroom teachers with assistance in determining what reading disability exists and recommendations as to remedial treatment. A third function of reading clinics may be the implementation of research which will investigate the effects of certain kinds of reading instruction, causal factors in reading disability, effectiveness of diagnostic tests, and other factors related to the reading process. Research in the area of prevention of reading disability should be of great interest to the reading clinic, and not enough is being done to try to determine more effective ways of preventing reading problems from developing. Reading clinics have in the files of their clients a vast amount of data that may be useful in

research studies and which, when analyzed, will help to improve the teaching of reading. A fourth function, which is unique with university and college reading clinics, is that of training reading teachers, specialists and clinicians. All colleges which train teachers offer some training in the teaching of reading. If the college offers only a baccalaureate degree there may be only one or two course offerings in the area of reading. However, at the graduate level, the university which offers a graduate program in reading will train students in at least the basic fundamentals of developmental reading, diagnosis and remediation. Many states require twenty-seven semester hours in reading and related areas for certification as a reading specialist. Graduate programs in reading education are developed to meet or surpass the minimum requirements set up by the International Reading Association.

The development of a reading clinic involves four basic considerations: clientele, the objectives or purposes of a reading clinic, implementation of objectives, and evaluation of objectives.

Having just been through the process of developing a reading clinic, the writer is well aware of the many trials and tribulations of such an effort. However, there is one factor that seems to be unlimited. There will be more requests for service than will be possible to accept. Teachers who are concerned, parents who are frantic, and persons who have reading problems are constantly seeking help with cases of reading disability which defy the regular patterns of instruction. Many times a parent, after discovering that there is a reading clinic available, will comment, "It's like finding a door in what I thought was a blank wall."

Some reading centers focus on adults, some serve only elementary school pupils, others only secondary or college students. Of course, there are

those who provide service for all ages. The type of client served may be determined by whether the clinic is private, public school, or university operated. However, before any of the other considerations can be examined a decision as to the type of client must be made.

Once this decision is made the objectives or purposes for the development of a reading clinic must be examined. Again these objectives may depend upon the type of clinic and certainly on the type of client to be served. There are reading clinics which offer only diagnostic services, others may provide only remedial services, some have the development of new methods and material as one of their primary objectives, while there are clinics which are concerned with research and dissemination of research findings. University clinics will usually incorporate all these objectives and include teacher training as a primary objective. Obviously, the determination of objectives is the second important step in the development of a reading clinic.

Following this, procedures must be developed to implement the objectives. How will the population be selected? Criteria must be established for this selection. Generally speaking, one criterion will have to do with the relation of mental age to chronological age and achievement. While help for slow learners and the mentally retarded is obligatory, these students do not necessarily fit into the category of disabled reader. We will define a disabled reader as one who is reading one or more years below his capacity. The use of an individual intelligence test and a survey reading test or informal reading inventory gives us this type of information. Then, as mentioned before, age will be another criterion depending upon the objectives of the clinic. Another may relate to the nature of the disability. Once the popu-

lation is selected, then begins the diagnosis of the reading disabilities.

Decisions as to how much and what kind of information is needed must be made. A minimum would include background information about a client including school records, health records, and records of any other efforts that had been made to assist with the problem. In addition, information should be gathered to indicate the capacity of the client and his present functioning level. If recent information is not available relative to such physical factors as vision, hearing, and general health it should be obtained. Diagnostic information concerning the client's abilities and disabilities in word attack skills and comprehension skills must be collected as well as information about interests, self-concept, and ambitions for himself.

If the reading clinic operates as diagnostic unit, these data will yield the minimum amount of information necessary. However, if the clinic's function is also to provide remedial treatment, then records must be kept to indicate methods and materials used in correcting disabilities discovered in the diagnosis. A log or anecdotal record describing activities and materials should be written each time the client is seen by a clinician. If a clinic is developing new materials or methods, records of this type plus evaluative data are vital.

Those reading clinics concerned with research will need to collect information and keep records of the kinds described above in addition to collecting data regarding phenomena being examined. The clinic which has teacher training as one of its objectives must keep additional records concerning the behavior of the teacher-trainee. Record keeping becomes a rather exhaustive task, but if the aims of the clinic are to be accomplished and evaluated effectively it is a very necessary task.

Implementation of objectives necessitates a staff of qualified people. In order to carry out even the most basic objectives of a reading clinic the following positions should be included: 1) a director who is highly trained and competent in the field of reading. 2) teachers or clinicians who work under the supervision of the directors (these teachers or clinicians should either be certified in reading or be trainees in supervised clinical practice). 3) a stenographer, and 4) the services readily available of such people as a school psychologist, a guidance counselor, and a social worker.

Materials and equipment needed will vary from clinic to clinic, but there are types of material applicable to all reading clinics. Tests as already described are required. Materials to provide remediation will include commercial and teacher-made activities to develop specific word attack and comprehension skills, books of high interest level and low vocabulary count. A reading clinic has an obligation to use new materials and equipment being developed in order to assess their effectiveness. Equipment such as a tachistoscope or a recorder, stories on film strips designed to move at varying rates of speed and other audio visual devices are available. However, the emphasis should always be on material that will help correct disabilities, be applicable to the reading level of the child, and be highly motivational.

A reading clinic that is to be effective must constantly evaluate itself and be evaluated by others in order to achieve its objectives. Procedures should be set up to insure that just as continuous diagnosis goes on with the disabled reader so will there be continuous evaluation of the reading clinics. Careful collection and interpretation of data is necessary. Evaluation by those who are served by the clinic can give a great deal of valid information that will help to define objectives more pre-

cisely, expand or contract them and develop more proficiency in meeting the needs of the disabled reader.

Reading clinics have an opportunity and an obligation to provide leadership in improving the instruction of reading and helping children overcome their disabilities in reading. We also have a responsibility to insure that they are established on sound principles and staffed by competent professional personnel.

Developing Reading Clinics in Public Schools

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READING CLINICS derive their existence from the needs of the school reading program. When students are unable for diverse reasons to progress satisfactorily through the regular developmental reading program, there is a need to provide diagnostic and remediation procedures which will enable the student to read at a level that could be expected of him. If remedial instruction is to be effective, the clinic cannot function as an isolated island for retarded readers but must be cognizant of students' school environments, work closely with classroom teachers, and utilize multidisciplinary talents in helping students. The clinic program is justified to the degree that it contributes to effective resolutions of reading difficulties.

The reading clinic can also contribute toward the improvement of classroom teaching. The clinical setting has potential for the training of teachers in remedial and diagnostic techniques.

These aspects of developing reading clinics within school programs will be emphasized here. This does not imply that these are the only considerations

which are pertinent to developing clinical services. There are many decisions which must be made concerning clinic referrals, selection of remedial cases, instructional programs, materials, and evaluative procedures. Some decision must be made to delimit the geographic area which a clinic can serve within larger school systems. The thrust of much of the literature concerning reading clinics has been in these areas; therefore, it seems appropriate to confine this discussion to those aspects mentioned previously.

Student needs

Most students progress through the developmental program and acquire the reading skills necessary for success; however, the reader who cannot achieve at a level which is realistic for him falls farther behind unless help is immediate and effective. The facilities of the clinic offer the specialized assistance needed in the diagnosis and remediation of severe reading disability cases. Thus, the regular reading program is extended to a clinical setting with the objective of returning the student to the classroom program as soon as he can participate successfully.

The specialized instruction allows the child to remain in the school environment. In fact, clinicians and teachers should schedule the student so that he misses only a minimum of content area instruction. Close cooperation between clinic and school is necessary if the student is to benefit in both environments.

The clinic has a responsibility to each student to see that pertinent and clear communication occurs among clinic, teacher, principal, parent, and student so that the diagnostic findings and instructional recommendations are implemented. The instructional and emotional needs of the student must be of common knowledge and emphasis in regular classroom activities as well as in the clinic.

This responsibility to the student should not end with the termination of remedial instruction. The progress of students should be followed with feedback from teachers and with retesting in the clinic. The information gained through this follow up is necessary for evaluation and improvement of clinical services.

Multidisciplinary needs

The clinician has the expertise to diagnose reading difficulties and to instruct in specific areas where weaknesses are found. Unfortunately, many students who are referred because of a reading disability also have other conditions which may be inhibiting reading progress but which are beyond the realm of the clinician. These inhibiting factors may be identified by the clinician, but they may require the attention of experts. Thus, an effective clinic program requires a multidisciplinary approach with many reading disability cases. Such an approach coordinates the efforts of the school nurse, physician, psychiatrist or psychologist, speech therapist, social worker, librarian, and available community resources such as family services and social and welfare agencies. The diagnostic or therapeutic program should be as comprehensive as the personal deviations of a single student may demand.

Service to teachers

The clinic has other contributions to make to the total reading program of a school system. It should be a ready source of ideas and general assistance to teachers of reading. Teachers are constantly asking about materials for specific purposes or the appropriateness of available materials. They should be encouraged to visit and observe in the clinic where a materials exhibit of textbooks, workbooks, tradebooks, kits and laboratories, games charts, and such materials can

help to answer many of their questions. Files of publishers' catalogues, records, films, annotated bibliographies on various subjects, professional books, and pamphlets useful in interpreting reading programs to parents should be available. The reading clinic can be a focal point of concentrated effort to stimulate and foster improvement of the total reading program through services to teachers.

Teaching training

The concern of the public schools with increasing the classroom teacher's effectiveness in teaching reading is reflected in current literature, in-service programs, workshops, and demands at teacher-training institutions for courses in developmental and remedial reading. One college course which is required by many public school systems introduces the diagnostic and remedial techniques which are used in clinical and remedial reading situations. It is an introductory course for clinicians and teachers. Naturally, classroom diagnosis and remediation will differ somewhat in depth, method, and purpose from clinical practices, however, one of the underlying assumptions for such a course is that an understanding of specific diagnostic and remedial procedures will effectively enhance the methods employed by the classroom teacher of reading.

A limited number of teachers follow the course described above with a practicum which involves the diagnosis and instruction of reading disability cases referred to the reading clinic. We have observed that the skills presumably developed in the didactic college classroom are made operational through this guided, practical application of understandings.

If, therefore, this type of expertise is better effected through practical experience and if a reading clinic is to be utilized for the improvement of the reading program, why shouldn't

classroom teachers be trained as clinicians under the guidance of the clinic reading specialist to develop and practice those skills of diagnosis and remediation which we advocate as important tools for effective reading instruction? The implication is that the teacher will be trained as a clinician and then be returned to classroom teaching to allow other teachers to benefit from the same experience. The efficacy of such a plan in the improvement of the total reading program is apparent.

The clinic would have a reading specialist trained in diagnostic and remedial techniques as the director. A large responsibility of the director would be with the training and guidance of teachers as clinicians. However, the primary purpose of the clinic is service to students which demands qualified clinicians and precludes a frequent change in staff. Thus, in proposing to use the clinic for both purposes, economy of time to produce maximum results is of concern for both teachers and students.

The student is already far behind in acquiring the necessary reading skills for his potential level or he would not be in a clinical situation. Ideally, he is to make the most out of the least amount of time in instruction. This requires the clinician to isolate specific areas of weakness and to plan remediation pertinent to those weaknesses in order to strengthen skills so that the student can return to the classroom program.

The school system will need to decide upon the length of time necessary to train teachers as clinicians and then return them to classroom teaching while maintaining the quality of the clinic program. It would seem that if a teacher participated for one year in such a training program both purposes would be served.

The first six weeks of the school year serves as a basic training period.

During this time the director introduces diagnostic and remedial techniques, discusses the interpretation and use of tests and materials, and instructs in the use of various instruments for visual and auditory screening, instructional purposes, and the like. As soon as a basic understanding of procedures has been established the teachers will begin to work with two pupils under the close supervision and guidance of the director. Each teacher will take one pupil who is new to the clinic and begin the diagnostic procedure with him. For practice in remediation each teacher will instruct one pupil who has previously been diagnosed and taught in the clinic. With the latter case the teacher has the benefit of diagnostic interpretations and instructional approaches from clinic records. Thus, at the end of six weeks the teacher will have had the practical experience of applying diagnostic and teaching techniques with the guidance of the director and is ready to continue with a larger number of students. This also seems an appropriate amount of time for the schools in the area served by the clinic to have observed pupils, identified those with reading difficulties, and referred the information to the clinic director.

By the end of a year each clinician has had opportunities to diagnose different kinds of reading problems, tutor pupils, and instruct small groups with comparable needs. This training in reading and experience in working with retarded readers will help the teacher in the classroom to diagnose reading difficulties effectively and efficiently and begin remediation specific to the weaknesses of the students. As they return to classroom teaching these teachers also become excellent resources for helping new teachers and for assisting in the reading improvement program in each school.

"Decentralized" reading clinics

The above plan could be adapted in some school systems where remedial reading programs are already established. Through various state and federal funding programs many districts have initiated remedial reading programs in which one or several remedial reading teachers are located in each school. It would seem appropriate to suggest a "decentralized" reading clinic in which the remedial position or positions would be rotated among the teachers within the school. The same teacher training purpose would be served. The clinic director would then circulate within the area to guide and advise the remedial teachers after the initial six-week practicum training in some central location. Weekly meetings would bring together the entire staff for discussion and further guidance throughout the year.

Summary

The foregoing suggestions have been made to indicate the role a reading clinic can assume in contributing toward the improvement of the total reading program. The remediation of reading disability cases and the training of teachers in clinical procedures can be compatible goals in developing clinical services.

Poor readers in clinic or classroom exhibit weaknesses in specific areas. Therefore, it is necessary for the clinician with severely retarded cases or the teacher in a classroom to analyze specific weaknesses and select materials and approaches to remediate them. The ability to apply diagnostic procedures, to understand the reader and his difficulties, and to give instruction for corrective work is necessary for effective classroom instruction. It is suggested that the clinic setting is appropriate to offer teachers assistance in improving these abilities.

PRESERVICE AND IN-SERVICE TEACHER EDUCATION

Government Support of In-Service Programs in Reading: Pros and Cons

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THE NEXT GREAT FEDERAL outpouring of funds for education assigns more than two hundred million dollars to "Educational Personnel Development Grants." The guidelines for preparing proposals make it clear that almost any promising idea for improving teacher education may be considered for funding. If you haven't yet made your plans for obtaining your share of this bounty, it is high time that you do so. My task here is to present some pros and cons in relation to federal support of in-service education for teachers of reading.

Pros

Teacher education is a highly critical area for improvement. The quality of teacher service to pupils is the determining factor in achievement yields in the classroom. This was shown again in the national study of first grade reading in which the differences among "reading systems" were found to be much less than the difference in achievement yields of teachers using the same system. Even when pupils were closely equated for initial ability, some teachers produced twice the amount of pupil learning as did others. This suggests that in-service teacher education is a more promising activity than that of the "curriculum development centers" which produce more materials to be taught by teachers of g competence. The U.S. Office

of Education is to be congratulated on a wise choice for expenditure of federal funds for improvement of teacher education.

Innovation, imagination, and diversity of approaches in teacher education are encouraged by this proposal. There is not the slightest taint of federal control of education in the guidelines. Each proposal may be as imaginatively designed as local competence decides; no bright idea is favored or censured. This continuance of a policy of creative federalism in which local innovation is encouraged is to be commended.

The only potential danger of "control" is the possible bias of the screening committees, but the bias will be professional rather than bureaucratic since screening committees are chosen from the profession.

The search for fundamental improvements in teacher education is a proper concern of the federal government. Teacher education is a national concern, common to all communities, all states. National problems require national approaches, we cannot expect local or state governments to assume the responsibility for solutions of national problems.

A national approach, however, must be more than a multiplication of non-comparable local approaches; it must have a design which will yield a body of useful knowledge about teacher edu-

cation through objective research comparisons of various approaches.

Cons

This brings us to a consideration of the cons of the federal proposals for improvement of teacher education. Although the problem is critical, of national scope, and innovation is encouraged, one can find little promise of a yield of significant knowledge about teacher education from this new expenditure of funds. What are some of the cons?

The fatal flaw is the lack of any plan for objective analytical comparison of the various approaches. This absence of plans for objective comparison of approaches is an appalling rejection of modern educational research procedures. Innovation is fine, but innovation without evaluation is futile. Even in master's level research we expect well-planned pre- and post-tests for comparison of results of different treatments. But in this multimillion dollar venture, there is no plan for comparative evaluation of the various treatments.

What we have here is simply the financing of a favored few of the thousands of current in-service education ventures, with no hope of acquiring assured knowledge of the components of superior teacher education. To be sure, the guidelines require plans for the evaluation of each separate proposal, but no comparison among the proposals. The winners will, as usual, be those programs with the most successful publicity. We may be sure that there will be later committees for comparative evaluation, but these will lack the needed objective evidence for comparison. Research requires advance design, not after the fact subjective evaluation.

The whole federal financing plan is not a true national approach to solving the problem of teacher education, but

simply a continuation of the present confusion among local approaches.

Lack of time for adequate planning of proposals is a serious flaw in this program of federal financing. This is always a difficulty in the federal funds for education: the money is voted by Congress; the bureaus must get it distributed as quickly as possible, or next year's budget applications will be rejected. To have unspent federal funds is unthinkable; one must get them distributed. Hence, in this area of teacher education in which competent minds have been searching for centuries, we must propose our solutions in a three-month's period on the marginal time of people already overloaded with current services.

If this were a problem of design of an interplanetary vehicle or of an atomic submarine, several years of lead time would be provided. In this much more complicated area of teacher education, we are given three months lead time. As a result, only current thinking will go into the proposals.

This lack of planning time excludes the development of the consortia or cooperative ventures suggested in the guidelines. It is difficult enough to get a proposal ready by June 1; cooperative proposals require far more time. An additional program in the consortia is the requirement of a single contracting agency, and this is a rather touchy subject when one is seeking cooperation among equals. When there is eventually a national approach to teacher education, several years of lead time will be provided for the design of wide-scale programs and precise instruments for evaluation.

Federally dispensed funds for local noncomparable ventures are vulnerable to the favored institutions criticism. Acceptable proposals are far more likely to come from institutions with the personnel familiar with the techniques of "grantsmanship." We saw this a few years ago in an analysis of

federal research funds in which ten universities received 38 percent of federal funds; twenty-five received 59 percent; one hundred got 90 percent while the remaining 10 percent was shared by the several hundred remaining institutions. To offset this criticism, many people advocate division of federal funds for education proportionally among states. If no national research program is utilized, such a distribution is inevitable. Why distribute funds for local ventures from a national source?

A minor criticism of special interest to colleges and universities is that the federal projects must be separated from current offerings, no matter how good these offerings are. Tuition may not be paid from these funds; special projects must be separately budgeted and staffed. This usually means that senior personnel will be assigned to the federally supported projects, with junior instructors being assigned to the much larger regular teacher education offerings.

The failure to provide a design for comparable evaluation of the approaches is, however, the major flaw in this federal venture in teacher education. Without such a design, or without several such designs, the result will be a continuance of current controversy about the components of superior teacher education.

Let's consider some of the possible elements of a truly national design for improvement of in-service education of teachers of reading. What are some of the problems which might be resolved through large-scale, long-term research design, without invoking federal control of education?

Problems in identification of the practices of the superior teacher of reading. How do we know what to put into an in-service program? Each of us has tried in-service education for many years, and each has his own about the components of such

programs, but we differ greatly in the components of our programs. Our knowledge of the abilities of the superior teacher is still in a primitive stage, with the current controversies yielding more heat than light.

Let me illustrate the problem by two teachers in the national first grade reading study. Each started with pupils of equal September ability on eight tests of reading readiness; the classes were the same size (36); they were in the same building; each followed "Method 3." Teacher A delivered her 36 pupils in June with a Stanford Reading grade of 3.2—above third grade, with no pupil below 2.0; Teacher B's pupils tested barely 1.5, just at primer level. What caused these differences in achievement yield? Do we have an accepted valid scale for determining professional competence in reading instruction? Can we identify components of superior service and impart them to low-yield teachers? Not yet!

One of my doctoral candidates and I developed a scale of teacher-service-to-pupils for first grade. Our scale had about sixty items for rating, including: provision for superior, average, and slow pupils—for levels and progress rates; provision of specific instruction suited to pupil subskill weaknesses; economy of the use of learning time; and enrichment practices. We found that it was possible to obtain a fairly high reliability, but when we checked validity through comparing teacher rating to pupil achievement the correlation was about .25. Initial abilities of children were equated through covariance on the basis of several September measures. A validity of .25 is not cheering; clearly our high-rated teachers did not always produce the highest achievements.

A national search utilizing competition among teacher-rating ventures in reading instruction might eventually yield useful information on this prob-

lem. The present federal program will leave us right where we are. If we cannot surely identify the components of superior teaching, what goes in to our in-service education programs?

Problems in evaluation of superior reading programs. Are our present standard tests adequate to measure all of the significant outcomes of the superior reading programs? Possibly the low validity of our rating scale was the result of measures inadequate to discover the true results of superior teaching. When disappointing research findings are rejected by complaints that "the measures were inadequate," it is evident that we should engage in competitive research in evaluation of reading programs.

If we cannot agree upon the outcomes of reading programs, how do we develop sound in-service programs to produce superior achievements?

As we develop scales for evaluating superior teaching and for measures of outcomes of reading programs, we will be ready for resolution of some other problems of in-service education of teachers of reading. An attack on such problems as true research would force us to develop the scales and measures required. Here are some problems which might be studied through cooperative-competitive research, with freedom to try different approaches and agreed-upon common measures of outcomes:

1. What are the most effective reading readiness programs? Proposals for reading readiness are wildly different; many practices are probably utterly useless. Let's put them in competition and find out.
2. Reading in the inner-city schools: what are the components of the most effective programs? The results will determine teacher education for these programs.

3. What are the best approaches for pupils with reading disabilities? What is the proper in-service education in this field? Some current programs seem very odd, to say the least! Put them all in comparative competition and many practices will quickly evaporate.

4. Which of the many competing approaches to reading instruction found in the exhibitor's hall here are the ones to include in our in-service programs? Let's have them compete; each of us choosing our favorites, then discovering at each grade level which have the higher yields.

5. What are the best reading approaches for the high school dropout? For the slow learner in junior high? The choice here also determines in-service education of teachers; put the approaches in research competition.

This is just a beginning of problems which might be resolved by a truly national research design. Here are others:

1. What part does linguistics play in in-service education in reading? Does a knowledge of phonemes, morphemes, allophones, phonetics, syntax, of pitch, stress, juncture, and para-language improve the quality of reading instruction? What elements of linguistic knowledge are essential in in-service education, if any?
2. How important are the contributions of the behavioral sciences in the in-service education of teachers of reading? If all courses in psychology, philosophy, sociology, and anthropology were omitted, could one tell the difference in teacher practices? Let's put them in competition and find out.
3. Is the key to in-service education

to be found in teacher attitudes of autocratic or permissive pupil behavior? Will proper use of an Amidon-Flanders interaction analysis solve instructional problems in reading? Give it a try in competition with other approaches. If personality is the factor, how about competitive psychoanalysis? (Or perhaps, selective breeding.)

4. Is the organizational type of the school the key to in-service education? How do reading results compare in teacher-team schools, nongraded programs, self-contained classrooms? A national competition among these would be interesting.
5. What is the place of modern hardware in in-service education? Can we do the job through television, videotapes, programed instruction, computer programs? Here, of course, the software seems more important than the hardware; but these too, should be put in competition.
6. What approaches provide the greater transfer in in-service education: demonstrations? micro-teaching? simulation? role-playing? What are the most effective approaches of the "clinical professor of reading?"
7. Who should provide the in-service education? Professors, master teachers, reading supervisors, building principals? Combinations of these? My preference is the building principal; he is the critical person. And with the constant turnover of teaching staffs, only a local person can meet the huge demand for in-service education.
8. For whom should in-service education in reading be provided? New teachers, old teachers, re-treads, parents, pupils, para-professionals? (How about a par-

ent-taught school, 50 percent professional, remainder local mothers and fathers, with child education being a community effort?)

Whenever you find differences of opinion in features of in-service education in reading, a cooperative-competitive research approach is indicated. Until we utilize research approaches, we will continue in our current conflicts of opinions about every aspect of the teaching of reading. Controversies in education are not to be met by debates or by comparisons of verbal rationalization; one can marshal plausible arguments on either side of any question. What is needed is objective research.

The federal program provides for innovative approaches, but it avoids research evaluation. The result will be the financing of a small fraction of teacher education ventures; some of us will be insiders but most will be outsiders. There will probably be little difference between the merit of the inside and the outside programs, but in view of the lack of a research approach, who will ever know? When the millions of dollars are gone, spent on the favored few ventures, our knowledge of how to provide effective in-service education will be the same as now. We can continue our controversies, and the most agile educational politicians will put their ideas into legislation to regulate the rest of us for our own good!

The Effect of Federal Fellowship and Institute Programs in Reading

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WE ARE NOW LOOKING forward to the fourth summer for NDEA Institutes and the third year for Experienced

Teacher Fellowship Programs in Reading. The question that naturally comes to mind is—What has resulted from this great investment of human energy, time, expertise, and money? Have these programs really brought about the changes in the teaching-learning situation envisioned when they were initiated? More particularly—Have these programs produced more effective reading personnel through newly designed programs at the graduate level?

Today many criticisms are being leveled at teacher education. Critics claim that our programs are unchallenging, lacking in quality, redundant, ineffective in developing appropriate teaching behaviors, and are out of touch with the real problems of the schools. It is my belief that the federal institutes and fellowship programs challenge these criticisms. These programs are innovative approaches to high quality, integrated graduate study that train participants to be learning strategists and skilled communicators with the students in classrooms and clinics. This is accomplished through the design, content, and organization of the federal programs offered; the nature of the practicum experiences in which the teachers participate, the highly competent instructional and supervisory staffs that engineer the programs, and the ongoing evaluations built into each program.

Before we attempt to examine the effects of federal fellowships and institutes on graduate teacher education, we should briefly consider their basic components: design, program content and organization, evaluation, instructional staff, and practicum personnel.

Design

Anyone who has worked his way through the planning, writing, and execution of a proposal for an NDEA Institute in Reading or an Experienced Teacher Fellowship Program will

never be satisfied with a disjointed, fragmented program again. He has had to identify a particular set of needs; set up objectives to fill these needs; design a program whose content, activities, and materials meet the needs that have been identified and result in the fulfillment of the objectives. In selecting the participants, he has had to match the needs of the applicants with the objectives of the program he designed. Then he has had to evaluate the success or failure of the whole endeavor in terms of the objectives he delineated at the outset. In other words, he has had the opportunity to create and administer a learning experience in the field of reading where needs determined the program and the program matched the needs of the teachers involved in it. The program designers' activities flowed from need to objectives to program to participant selection to evaluation. Thus a unity or wholeness was present from the inception of the program to its culmination.

Program content and organization

Reading fellowship and institute programs are usually centered around three components: core reading courses, substantive content, and supervised experiences with children. The core courses are planned to acquaint the experienced teachers with the theories, approaches, problems, research, and materials of reading. Each area is presented, discussed, and evaluated in terms of the objectives of the program. Substantive courses in psychology, sociology, linguistics, and in other related fields are provided to feed and enhance the reading nucleus. The knowledge and skills learned in the core and substantive courses are practicalized through supervised teaching in classrooms and clinical experiences in reading centers.

In addition to formal instruction and practicums, a great amount of informal

learning takes place in institute and fellowship programs. Most programs are *en bloc* and the participants have been chosen not only because of their needs but also because of their ability to contribute to the richness of the program from their own unique backgrounds of teaching experiences. A special lounge provides the setting for these informal learning experiences.

Evaluation

An ongoing system of evaluation plays an important part in the success or failure of federal institute and fellowship programs. Through evaluative techniques, strengths of the programs can be discovered and weaknesses irradiated. Constant feedback from instructors and participants through steering committee meetings and staffings keep the programs dynamic and give the insight and thrust needed to realize the program's goals.

A few examples can indicate how ongoing evaluation worked out in the development of our experienced teacher fellowship program in reading at Clarke.

During the first year of operation, parts of our Experienced Teacher Fellowship Program were definitely weak. One of these areas was in the diagnosis and correction of reading problems. In our original plan, four basic courses (psychological testing, diagnosis of reading problems, correction of reading problems, and clinical practice) were to be combined into eight semester hours of theory and clinical work. During the first year, this goal of an integrated course was only partially achieved. Psychological testing, diagnosis, and practice were integrated, as were correction and practice, but the complete integration of the four courses left much to be desired. Most of this was due to the preconceived notions and experience of the instructor. However, through the interaction of the professor with the fellows and

other faculty members, the need for complete integration has been realized. The course has been totally revamped and is now being handled as it was originally envisioned—and with great success.

Another course, reading in the academic disciplines, was a bold new venture. In this course, we wanted to bring together experienced elementary teachers, scholars from the sciences, arts, and humanities, and reading specialists to study the structures of each discipline. It was hoped that each group would make its own contribution to the solving of elementary school reading problems.

From the beginning, this course demanded more expenditure of time and energy than did any other course. Several factors entered into this. The scholars from the academic disciplines had heard of the sophistication of the fellows. At the same time, they were looking at their disciplines in a totally different way than had been their custom. It was also difficult for them to grasp the real purpose of the course since their background in the teaching of reading was not on the same level as their knowledge of their discipline. Frequently they attempted to teach too much in too little time. As a result, the scholars were somewhat apprehensive and insecure especially in their initial confrontation.

On the other hand, the fellows were a bit intolerant of the scholars' point of view. They failed to see the real value of the course until it had almost terminated. The coordinator of the course, a reading specialist, had not always oriented the fellows adequately for each venture into a new discipline nor had she used the technical skill of closure frequently enough.

Even though the course was on the verge of falling apart a few times, it was successful for many reasons. Scholars from the various disciplines were given new insights into the prob-

lems of elementary teachers. Elementary teachers (the fellows) began to develop greater respect for the academicians and saw the sciences, arts, and humanities with new vision. The college instructors in education and the reading clinicians saw their roles in the teaching-learning setting with new perspectives.

A very frank discussion of the strengths and weaknesses of the course by the fellows and the staff indicated that much had been learned by all groups and that if the weaknesses were corrected, the course could become a very valuable one. As a result, this year's plans include parallel teaching and interaction between the scholars and the reading specialists rather than a block approach. Needless to say, the goals of the course are being achieved much more effectively on the second round.

Another area that had to be worked out through ongoing evaluation and planning was our practicum in developmental reading. Its purpose was to implement the theory learned in the foundations of reading class, learning theories, advanced child psychology, and contemporary children's literature. This was to be done in the classrooms of our public and nonpublic schools one hour each day for one semester.

From the beginning the public and parochial school administrators were enthusiastic about the fellows teaching in their schools. The teachers of the regular classrooms also seemed pleased to be a part of this new venture. The actual working out of this practicum, however, was another matter. To begin with, the fellows had been selected for their outstanding performance and potential in teaching so they were equal to or better than a number of the classroom teachers with whom they worked. We tried to make up for this by having the fellows work in pairs so they could stimulate one another and work with the regular class-

room teachers as a team. This approach was somewhat successful. But it wasn't long until we knew we had to find more efficient ways to release the tremendous teaching potential bound up in the fellows. After much research and long discussion with all the personnel involved, we decided to try microteaching.

Microteaching is a scaled-down teaching experience with groups of four to six children for short periods of time. The teacher selects one particular reading skill (1) he wants to teach the children, for example, the author's organization of a paragraph, and plans a five to ten minute lesson to achieve this aim. His lesson plan includes not only the content he wants to teach but also a technical skill that will enhance his communication with the children. He can choose one or more skills from the following list adapted from the technical teaching skills identified by Allen (2):

1. Classroom control skills
 - Recognizing and obtaining attending behavior
 - Control of participation
 - Teacher silence and non-verbal cues
2. Questioning skills
 - Asking questions in general
 - Use of higher order questions
 - Use of probing questions
 - Student-initiated questions.
3. Presentation skills:
 - Illustrations and use of examples.
 - Planned repetition.
 - Closure
4. Motivating skills
 - Set induction
 - Reinforcement
 - Varying the stimulus situation
5. Inquiry techniques
 - Establishing appropriate frames of reference
 - Student initiated questions
 - Inquiry training

While the teacher is teaching this lesson, a video camera and recorder are taping the teaching-learning interaction of the fellow and his class. At the termination of the lesson, the teacher views his performance and the children's on the videotape and critiques it with his supervisor. The

teacher's lesson plan is then revised so that new and better communication strategies can be worked out to improve his teaching and the children's learning. He then teaches the revised lesson to a new group of children, critiques it again while viewing the videotape and repeats this procedure until the skills are mastered.

From microteaching the fellow moves into the classroom to test his newly acquired skills on a larger scale. Needless to say, we have found microteaching to be an exciting and effective way to train the fellows to become strategists in learning situations and skilled communicators with students in the classrooms.

Instructional and supervisory staff

The last but certainly one of the most important components in the program is the staff. The director, the instructors, and the supervisors must be specially chosen for the roles they play in the programs. Proper educational background, teaching experience, openness to and sympathy with the rationale of the program, willingness to plan and to revise plans, and the ability to produce and evaluate ideas and skills, and to challenge and to be challenged by students and professors are all important qualities needed by the instructional and supervisory team. Since the participants in these programs are experienced teachers in an *en bloc* program, it is expected that a great amount of learning will take place through interaction of faculty and participants, and the participants with one another.

Effects of federal institute and fellowship programs as judged by participants

Inquiry scales concerned with the effectiveness of federal fellowships and institute programs in reading were sent to a sample of one hundred participants. Eighty-four re-

sponded. Participants were asked to rate each item on a five-point scale: five-very good, four-good, three-adequate, two-inadequate, one-very inadequate, and zero-no opinion. The questionnaires sought information about four aspects of the programs: 1) the general effectiveness of the programs, 2) the effectiveness of the course content and practicums, 3) faculty and participants, and 4) the implementation of their program learnings into their local schools. A general discussion of each area follows.

General effectiveness of the programs

Participants reacted very positively to the general effectiveness of the programs. Eighty-three to ninety-three percent of the participants gave the highest possible rating to items in this area. They felt the programs were a great challenge to their intellectual capacities, that in comparison to previous educational programs the quality of their institute or fellowship program was very outstanding, and that the programs stimulated to a great degree their continued interest in teaching.

Effectiveness of course content and practicums

The effectiveness of the core reading courses was rated highly. Ninety-six to ninety-nine percent of the participants felt they had a good understanding of the reading process and the factors that influence it, a good grasp of the basic reading skills and of comprehension of current approaches to the teaching of reading. They also felt they could critically evaluate current reading practices in the light of research as a result of their study.

Contributions of disciplines related to reading, such as psychology, sociology, linguistics, and statistics were rated very good by fifty-seven percent and good by thirty-two percent. Speakers from the various disciplines fared better with seventy-seven percent

giving a rating of five and seventeen percent a rating of four.

Seventy to seventy-eight percent of the participants gave ratings of a very good to learning that resulted from practicums and laboratory experiences. The participants greatly appreciated the opportunity to use new reading methods and materials in the practicums as well as the facility gained in evaluating new materials and approaches to the teaching of reading.

Faculty competence and interaction with participants

Ninety-five percent of the participants who responded gave the highest possible rating to the competency of the faculty and their choice for their job. Ninety-two to ninety-three percent rated as very good the overall effectiveness of staff and impact of the staff on the participants. Attitude of the staff to participants, interaction between staff and participants, and interaction among participants were rated very high by ninety-two percent of the respondents. This was especially gratifying since one of the major aims of the institute and fellowship programs was to bring into being a community of scholars (staff and participants) who would grow personally and intellectually from the stimulation given by one to the other.

Implementation in local schools

Implementation into their schools of practices learned during the programs was given a rating of five by fifty-one percent and a rating of four by forty percent. However, the degree to which the participants were used in local in-service reading programs or in local professional meetings was much less spectacular. Only seventy-seven percent rated their involvement as very good or good.

In this paper, we examined the basic components of federal institute and fellowship programs. We have also discussed how effective these programs

have been in the past and in the present. What effect will they have on the graduate programs of the future?

NDEA Institutes were designed to upgrade and update in-service teachers. These summer programs seemed to give new life to those fortunate enough to be chosen to participate and seemed to whet the participants' appetites for more of the same kind of education. They wanted more programs where theory was balanced with practice, where instructors worked closely with experienced teachers, where experienced teachers learned from interaction with other experienced teachers, where graduate schools and instructors became involved in the problems of the local schools and the local schools came to the graduate schools for solutions to their educational problems. But these experienced teachers wanted more than a summer program. They wanted more time for in-depth study in an *en bloc* program and so the experienced teacher fellowship programs were born. Would it be stretching our imaginations too far to hope that these experienced teacher fellowship programs might be the pilot programs for our future graduate programs? That future graduate programs will reflect the unity of design, the flexibility of program content and organization, the built-in evaluations, and instructional staffs concerned about and involved with pupils and teachers in the teaching-learning strategies that are central to our present Experienced Teacher Fellowship Programs?

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State Certification of Reading Teachers and Specialists: Review of the National Scene

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READING SPECIALISTS work in local schools in all fifty states, the District of Columbia, and in Puerto Rico. Many local districts in some states have special teachers of reading and reading consultants or supervisors on their school staffs. Most of the public probably believes that the titles these staff members hold (remedial reading teacher, reading clinician, reading consultant) are evidence of a certain amount of training and experience. This may or may not be so. While highly qualified reading specialists currently work in all states, at the present time half of the states in the United States still permit someone to work as a school reading specialist with little or no specialized training or experience in the teaching of reading. Whether a reading title guarantees anything particular about the person holding it is largely a matter of geography—a matter of the state or local district in which this person works.

This study

The findings reported in this study are a result of interpreting and tabulating responses to a questionnaire mailed to state education agency certification officers in the fifty states, the District of Columbia, and Puerto Rico. Each officer was asked to respond to seven or eight items on the questionnaire (seven items for states that *do not require* and eight items for states that *do require* specific certification for reading teachers or specialists). All certification officers responded. This study is an attempt to draw a composite picture from these fifty-two completed questionnaires and from the certification

requirements now in force for school reading specialists in all states that require such certification.

Current status

Prevalence of required reading certification. In response to the question "Does your state now have specific certification requirements for reading teachers, specialists, consultants, or supervisors?" twenty-three certification officers replied "yes" and twenty-nine replied "no." Two of the twenty-nine who had replied no (Colorado and Montana) indicated that their states already had reading certification or endorsement but that it was not *required* at this time. One of those that said yes (California) pointed out that his state's certification was required only for teachers in state-funded programs. So it appears that twenty-five of the fifty-two state agencies presently have certification or endorsement for reading specialists and twenty-three of the fifty-two require this certification for at least some of the people who do this work in their local schools.

Other acceptable certification for handling reading. Thirty-six of the fifty-two certification officers responded to the question "What other certificate(s), if any, enable(s) a person to teach special reading groups or classes?" Their responses were as follows:

None (3/36)	8%
Elementary Teacher (30/36)	83%
Secondary Teacher of English (11/36)	31%
Secondary Teacher (7/36)	19%
Special Education (3/36)	8%
Remedial Teacher (1/36)	3%

Thirty-one certification officers responded to the question "What other certificate(s), if any, enable(s) a person to supervise a school reading program?" Their responses were as follows:

None (8/31)	26%
Supervisor (14/31)	45%
Elementary Teacher (7/31)	23%

Principal (5/31)	16%
Secondary Teacher (3/31)	10%
Secondary Teacher of English (2/31)	6%
Special Education (1/31)	3%

From these responses it appears that in many of the states an elementary or secondary school teaching certificate is sufficient indication that a person is equipped to provide reading instruction for special groups or classes of pupils, and a supervisor's, elementary school teacher's, or principal's credential is sufficient for supervising a school reading program. In short, most states require no special training or experience in the teaching of reading either of all persons who teach special reading groups and classes or of all persons who supervise a school reading program.

Characteristics of required reading certification. The twenty-three state certification officers who said their state agency required special reading certification were asked to name groups of people which participated in developing this certification, to tell whether certification required for reading supervisors was different from that required for reading teachers, and to provide a copy of their current reading certification requirements.

When asked to identify all groups of people which were instrumental in initiating their reading certification program, certification officers mentioned most frequently groups from the 1) state education agency and 2) teacher-training institutions. One hundred percent of those who responded named "state education agencies" 95 percent named "teacher-training institutions;" 67 per cent said "local school staffs;" 57 percent said "reading organization," and 29 percent named other groups such as professional organizations (other than reading organizations), the PTA, and the State Legislature.

When asked to identify all groups which contributed representatives to

help draft their certification requirements, again state education agencies and teacher-training institutions were most frequently mentioned. Ninety-two percent of those who responded said their certification requirements were drafted by representatives from the "state education agency;" 85 percent said "teacher-training institution;" 62 percent said "reading organization;" 54 percent said "local school staffs," and 8 percent named other groups.

It appears that groups from the state education agency and teacher-training institutions play a dominant role, both in making known the need for this certification and in contributing representatives to help create it. In only slightly more than half of the states requiring reading certification did reading organizations or local school staffs play a part either in initiating or in drafting this certification program.

Several different reading titles are certified or endorsed by the twenty-three state agencies which require certification in reading. Fourteen state agencies certify only one title; five agencies list two titles; two list three, and two state agencies list four. These titles and the number of state agencies certifying for them follow:

Reading Specialist (9)

Special Teacher of Reading (8)

Remedial Reading Teacher or Clinician (8)

Reading Supervisor/Coordinator/Director (7)

Reading Consultant (4)

While nine of the twenty-three states certify more than one title, in some states a single title enables a certified specialist to take on a number of different reading assignments. For instance, Connecticut certifies a single title—Reading Consultant—however, Connecticut's certification regulations state that

... they shall be required for anyone serving as a supervisor, consultant,

coordinator, director or special teacher in the area of reading instruction, including anyone whose function is 1) to work with teachers and other school personnel in curriculum planning and revision as it relates to the total reading program; 2) to assist classroom teachers, other teachers of reading and other school personnel in improving instruction in reading; or 3) to provide special remedial reading instruction for elementary and/or secondary students.

In response to the question, "Is certification of reading supervisors different from that required for reading teachers?" 64 percent of the certification officers in states that require special reading certification or endorsement said "yes."

The thirty-eight different certification credentials in existence among the twenty-three states that require special reading certification have several characteristics in common:

- 86 percent require a previously held classroom teaching certificate
- 70 percent require one to five years of teaching experience (either teaching reading or teaching other subjects; most require three or more years of experience)
- 97 percent require twelve or more semester hours of collegiate training in the teaching of reading
- 59 percent require at least one course or three semester hours of collegiate training in a clinical or laboratory practicum (22 percent require six or more hours)
- 57 percent require twelve or more semester hours of graduate level training in the teaching of reading
- 54 percent require a master's degree or its equivalent in graduate training

Study of these thirty-eight reading credentials shows that most of them do not meet the criteria set forth in "Minimum Standards for the Professional Training of Reading Specialists" published in 1965 by the International Reading Association. Many require fewer than three years of successful teaching and/or clinical experience. About half of them require less than a master's degree or its equivalent of a bachelor's degree plus thirty graduate hours. Some are not clear on how hours should be devoted to

courses in the teaching of reading or to study in areas closely related to reading. Only eight reading credentials appear to meet IRA's minimum standards. These certificates and the state that issues each of them are

Reading Consultant (Connecticut)
 Reading Supervisor (Delaware)
 Rank II Reading (Florida)
 Rank I Reading (Florida)
 Reading Consultant (Minnesota)
 Reading Supervisor (New Jersey)
 Reading Specialist (Oklahoma)
 Reading Specialist (West Virginia)

The areas of study mentioned in these certification credentials are generally quite diverse. Most commonly specified studies concerned with the teaching of reading and the number of reading credentials that name them are

Diagnosis and Correction of Reading Disabilities (27)
 Basic Methods or Foundations Course in Teaching Reading (19)
 Remedial/Corrective Reading Techniques (15)
 Developmental Reading, Elementary and/or Secondary (9)
 Methods and Materials of Teaching Reading (8)
 Organization/Supervision/Administration of Reading Programs (8)

Frequently mentioned studies in areas related to the teaching of reading and the number of reading credentials that name them are

Psychology, including Child, Adolescent, Learning (22)
 Measurement and Evaluation, including Mental Testing (18)
 General Supervision (8)
 Child and/or Adolescent Literature (7)
 Curriculum Development (6)
 Personal and/or Mental Hygiene (5)

Future prospects

Changes in current state certification. Certification officers in the twenty-three states that require special certification or endorsement for reading teachers or specialists were asked, "At this time are changes in your certification being developed?" Two did not respond to this question. Certification officers in sixteen of the twenty-one states responding indicated

that they were not presently engaged in changing their existing reading certification programs although several officers pointed out that existing programs are regularly reviewed and evaluated. Five certification officers responded that people in their states (Iowa, Massachusetts, New Hampshire, Pennsylvania, and Wisconsin) were now in the process of developing changes in their existing certification programs for reading teachers and/or specialists. By 1970 about one fourth of the states that now require certification should have made changes in their present programs.

Development of new state certification. Certification officers in the twenty-nine state agencies that do not now require special certification for reading teachers or specialists were asked to respond to three questions about the future:

1. Is specific reading certification being developed at this time? Yes No
2. Is development of specific reading certification being planned? Yes No
3. If you circled "Yes" in response to question No. 1 or No. 2, when do you expect this certification will become effective? _____

Since Colorado and Montana already have certification programs for reading specialists although this certification is *not required* for reading personnel working in their local schools, only twenty-seven of the twenty-nine certification officers in states that do not require reading certification were able to answer these questions. Of these twenty-seven,

two states are in the early-discussion stage of planning for reading certification.

two states are planning to adopt the "approved program" approach for reading certification (apparently without development of state guidelines for "approved" programs).

five states are engaged in planning for the development of reading certification programs.

six states now are developing (writing) reading certification programs.

Ten of the fifteen state officers who indicated their state education agency currently was planning for or was developing a specific reading certification program forecasted when they believed this certification would become effective. If their estimates hold true, ten additional states should have reading certification programs by 1970. These states and the year when their certification programs are likely to become effective are as follows:

1968—Alaska, Arkansas, Nevada, New Mexico
 1969—Hawaii, Nebraska, North Carolina, Rhode Island
 1970—Ohio, Vermont

When added to the twenty-three states that now require specific reading certification and the two states that have certification but do not require it, these ten states with new certification programs will bring the total to thirty-five state education agencies that will have specific reading certification programs by 1970.

In addition to these thirty-five, one state (Alabama) already has approved a program to prepare remedial reading specialists at its state university, and three states (Kentucky, Louisiana, Michigan) report that they are in the very early discussion stages of planning for specific reading certification and it is too early to say when—if ever—these programs might become effective. These four states would bring the total to thirty-nine state agencies with reading certification programs at some time in the future. If all forecasts materialize as expected, the tally for state agencies in the future would be *thirty-nine with* and *thirteen without* specific reading certification programs.

What about the thirteen states whose certification officers do not foresee reading certification programs for the future? These are the agencies in Idaho, Illinois, Kansas, Maine, New York, Oregon, Puerto Rico, South

Dakota, Tennessee, Texas, Utah, Virginia, and Washington. According to figures that can be found in the 1967 edition of the *Digest of Educational Statistics* published by the United States Department of Health, Education and Welfare, the total number of public elementary and secondary school children in these thirteen states is estimated to be 13,365,000. This figure represents approximately 33 percent of the total number of children in these grades throughout the United States in 1967. This same publication gives statistics which show that in the same thirteen states, with the exclusion of Puerto Rico for which there is no comparable data, the number of illiterates fifteen years old and over in 1967 was 1,100,000 or approximately 30 percent of the total illiterate population of the United States for that year.

Movement toward "approved program" approach. One final question was asked of all fifty-two state certification officers: "A number of states are tending toward a 'program-approval approach' to certification. In your opinion, is such a procedure likely to occur in your state within the next ten years?" This question was poorly phrased. Several state officers pointed out that their state already had adopted the "program-approval approach" (the certification approach by which college-training programs rather than specific college courses are approved). Indeed, some states had followed this procedure for as long as twenty years!

Nevertheless, fifty state certification officers indicated that their state either already had adopted or was likely to adopt the program-approval approach within the next ten years. There is some evidence from the data provided for this study, however, which seems to indicate that program-approval approach is implemented differently among the states that already have it. Some states have developed guidelines

that spell out in detail the areas of study and credit hours that must be contained in "approved" college programs. Other states appear to have no guidelines at all. One state (Pennsylvania) has developed a comprehensive guidelines publication which describes the general objectives, staffing, facilities, and student proficiencies expected of approvable college-training programs for reading specialists. If this procedure is as diversely implemented as it appears to be, even with program-approval, whether a reading title guarantees anything particular about the training, experience, and competencies of the person who holds it will still depend largely on the state of the local district in which that person works!

Questions and recommendations

The results of this study generate several questions:

1. In the states that permit certified elementary teachers, secondary teachers of English, and secondary teachers of other subjects to teach special reading groups and classes does the training and experience required for these certificates adequately equip persons who hold them to do such teaching?
2. In states that permit certified general supervisors, principals, and teachers to supervise a school reading program does the training and experience required for these certificates adequately equip persons who hold them to undertake such supervision?
3. In states where certification for reading supervisors does not differ from that required for reading teachers are certified reading teachers adequately trained and experienced to supervise a school reading program?
4. In the states that already have reading certification programs why weren't local and state IRA councils represented more frequently among the groups instrumental in helping to develop specific reading certification programs?
5. What are local and state IRA councils doing to initiate and help draft specific reading certification programs in states that presently have none?
6. Why isn't successful classroom teaching experience a prerequisite in all states for personnel certified as reading teachers or specialists?
7. Why isn't a practicum in working with teachers more frequently required for certification as a reading consultant or supervisor?
8. Why aren't linguistics, children's litera-

ture, and adolescent literature mentioned more frequently as important areas of study for reading certification?

9. What can be done to insure that program-approval approaches adopted by state education agencies will insure an adequate standard of proficiency among students trained by various colleges and universities in a state?

In conclusion, four major recommendations that result from this study are as follows:

First, the profession and the public should exert every effort to make certain that every school is adequately staffed by persons competent to provide an effective program of reading instruction.

Second, the profession and the public should exert every effort to make certain that only persons with sufficient proficiency to provide for effective reading instruction are given the title of reading teacher, reading consultant, reading specialist, reading supervisor, reading director, or reading coordinator.

Third, the content of current state reading certification programs should be reviewed carefully to insure that every existing program assures the kind of training, experience, and proficiency that will prepare certified reading specialists who are effective in their work.

Fourth, reading organizations such as local and state IRA councils should become more actively involved in initiating and helping to develop state reading certification programs, particularly in states that currently have none.

It is without question that many highly-qualified reading teachers and specialists presently work in all fifty states, in the District of Columbia, and in Puerto Rico. Improved state reading certification standards can protect the professional status of these teachers and specialists and, at the same time, it can strengthen reading instruction for more children and youth.

Promising Practices in In-Service Education in Reading: Elementary Teacher Development for Innovation and Change

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IF the findings of recent research have achieved consensus in any one area it is in the conclusion that the role of the teacher is crucial in the success or failure of any experiment. Guy Bond stated this as having emerged from the grade one studies, Jeanne Chall reiterated it in her book on beginning reading, and Helen Robinson restated it in the latest National Society for the Study of Education yearbook on reading. The teacher, not the methods or materials, makes the difference. This being the case, when the teacher becomes the center for the organizing principles in a program, when the teacher is constantly encouraged to take the initiative and accept responsibility for his own learning, innovation and change result. Yet, change that is the result of individual effort is not enough. Individual efforts require coordination or pooling, as a technique of team function, in order to change the total organization.

Knowledge of content and knowledge of how we learn and how we teach are accumulating too rapidly for teachers to keep up the pace without help. Congreve in *Innovation and Change in Reading Instruction* (N.S.S.E. Yearbook, Part II, 1968) says that teachers are confronted daily with problems which have meaningful relationship to those with which a research scholar deals. But research, to be useful in education, must be applied to real life situations. Therefore, we must have teachers who can study the children with whom they are working in their particular environment and use the findings to select appropriate inno-

vations in methods, techniques, and organization to maintain quality education.

Help for the teacher

Teachers are probably the only group who are apparently not granted the privilege of having individual differences. The same in-service training is invariably given to all (teachers) regardless of whether they are *upward mobile, indifferent, or ambivalent* types (2). Again, much of the usual in-service training arranged by the administration for curriculum maintenance or indoctrination of new ideas rather than for professional development. Successful in-service reported in professional journals upon examination offers very little more. Almost invariably it will concern itself with teaching phonics, a subject which teachers could just as easily review by the use of film and books in a central curriculum laboratory.

It would seem that teachers could be helped more from in-service if the training

1. is conducted with the upward mobile or dedicated teacher in mind. (This type of teacher, by putting ideas into practice in different classrooms, would act as the leader or conductor of demonstration centers throughout the system. Hopefully these centers would act as stimuli, which, over a period of time would affect other teachers who lacked confidence or who were indifferent.)
2. is followed up with the continuous support of the administrative staff.
3. is supported by a curriculum research laboratory containing film loops, video, and other materials made by the experimenting teachers and available as aids to those who do not upgrade their teaching by courses or by reading.
4. is always directed towards feeding new research ideas to the type of teacher who in turn, is capable of custom-fitting them to the classroom through experimentation.
5. is designed to demonstrate psychological successes and logical structures for teachers to work out in the classroom. This depends upon inquiry rather than the *do this and use that* approach which is obsolete as soon as it is grasped and cannot possibly cater to individual differences.

An in-service institute

In Alberta we have been attempting for many years to encourage teachers to work out a more effective reading program in the schools. The development of the school survey approach has been used to demonstrate to teachers that they could put theory into practice and that they could develop the skills to handle reading problems effectively within their own program. The survey approach brought together the teachers, the pupils, and the university and is now an integral part of our university teacher training program.

We have, in addition, started institutes to develop needed background and experimentation in specific areas of reading. These institutes are concerned only with the development of one or two aspects or skills rather than with a broad general area. They are structured on the five previously stated guidelines for in-service training.

Reading generally is considered as a two step process involving *identification* (simple configuration, letters, letter patterns, words, clauses, sentences) and *comprehension* (3). Identification should require little in-service, simply because there is so much available material for this type of s-r training activity needed. Comprehension, however, judging from an examination of the products of our schools, seems to be another matter. Just because a child can identify words, we appear to assume he can abstract the ideas, obtain the fine meanings and note the conclusions of the authors he reads. The new mathematics, linguistics, new understandings of the thought processes, and recent stress on rhetoric and logic have all contributed to progress in the understanding of the processes of comprehension. However, findings are not yet generally applied to the teaching of reading. In cooperation with the city reading consultants we decided to try an institute dedicated to developing

comprehension skills. The first three aspects selected were language, word meaning, and abstracting ideas. These are basic skills needed for processing information obtained from books so that it can be received, stored, integrated, and transmitted for use. The decision to work on these particular skills was influenced by the results of a teacher questionnaire and by personal observation. The following theoretical principles were used as guidelines (1):

One is that teaching will be more effective if it incorporates the ways the elements of knowledge are related logically. Second, what is learned will be retained longer if it is tied into a meaningful cognitive structure. Third, what is learned will be more readily transferable if it is tied into a system of knowledge.

The approach taken by this institute was as follows:

1. From their schools the consultants selected teachers from grades one, three and five. The teachers were advised that they were not expected to put on a show but only to demonstrate the results of their experimentation for the information and discussion of the in-service teaching sessions.
2. The consultants and the writer visited each teacher, discussed the area each wished to work on (Grade 1—Language, Grade 3—word meanings, Grade 3—abstracting ideas from a paragraph) and did some experimental demonstration work with the children. The teachers were then left to try out other ideas relating to their particular topic.
3. A week later the advisers and the teachers met for a progress session. Discussion resulted in the development of more background materials and methods.
4. About two weeks later the teachers had succeeded in preparing a demonstration which was felt to meet the requirements.
5. A week later a final group meeting was held to resolve any difficulties and to arrange the institute schedule: 1) introductory talk on comprehension and language, 2) demonstrations with teacher discussion after each, 3) summary of proceedings and suggestions for a follow-up presentation of any continuing work done by others on the topics by others.

The teachers in the three grades at-

tempted to demonstrate how the psychological order of the cognitive powers of children and the logical order of disciplined knowledge acted as organizing principles for teaching and learning the spoken word for depth of understanding and abstracting ideas from paragraphs.

Grade One. The teacher used a simple picture of a snow fight. She demonstrated group diagnosis of the children's ability to apprehend the theme, main ideas and supporting details through the use of open-ended questions: "What would you call the picture?" "Why?" Word fluency and idea fluency as well as types of sentence patterns, their sequencing, and word meanings were also brought out.

Grade Three. Abstracting ideas from the paragraph is the logical sequence to word understanding and usage, therefore the same procedure was used here as in reading the picture in the Grade 1 demonstration. First the children estimated the theme and topic sentence, defending their selection by showing how every other sentence was related to the theme or topic through syntax or logical meaning. They also picked out the key words and were able to show by classification and generalization the same results they had obtained by exploration of sentence relationships. Teacher discussion afterward brought out the advantages of these techniques for accuracy in abstracting ideas for synthesis into summaries or notes.

Grade Five. The teacher, using a social studies topic (The Appalachian Shield) as content material, had the students list all the key words that they could find from the reading assignment and from films. By discussion they were led to note and summarize the different forms of definition, the functional use of the word in the sentence as well as its historical and structural format. Subsequently, these

children made word files for future reference. Finally they found that the words could be classified into a branching outline which would lead them further into the topic. For example, they found that they had generalized such classifications as mining or fishing which could be broken down into many continuing subheading and thus make an order of structure of all the information they had abstracted by merely listing key words.

The results

By observation and the usual grapevine we were able to assess some of the results. At first there were requests for a written guide. As a result the four demonstrators on their own initiative compiled a report in which they formulated their organizing principles and described briefly how they had attempted to carry them out. The use of the video tapes taken of the demonstrations and the report written by the teachers are now being requested by other school systems. The demonstrators and other dedicated teachers are now back in their classrooms experimenting. Their activities, it is to be hoped, will act as continuing demonstrations to stimulate the ambivalent and the indifferent. Next year skills for synthesizing and problem solving in reading will be the institute theme.

Summary

The effect of this institute spread quickly from the individual teachers concerned to their colleagues and from them to the city systems. We feel that a beginning has been made in teacher in-service which will stimulate teachers to self-renewal, give them confidence, and help them become the instruments of innovation and change.

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Promising Practices in In-Service Education in Reading

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RESEARCH IN EDUCATION in general and reading in particular presents clear evidence of the need for in-service education. In the 1968 Yearbook of the National Society for the Study of Education, Austin (3) summarizes the findings of three major studies conducted in the present decade, namely, the reports of Conant and the Harvard-Carnegie reading studies. Each study reveals the lack of complete professional preparation at the undergraduate level, thus establishing the need for the continuity of professional education beyond the baccalaureate degree.

Since the majority of teachers do not pursue formal graduate study before beginning their careers, their professional education must be continued in situations directly related to their teaching. This is in-service education. Even those who earn graduate degrees will find it necessary and desirable to update their knowledge in the light of current research. This, too, may be accomplished through in-service education. The very complexity of the teaching-learning process confirms the wisdom of the maxim "Who dares to teach must never cease to learn."

To be effective, in-service education must meet the needs of the individuals it will serve; thus each program must be designed by the persons who understand the particular learners and their needs, and the learners themselves must share in the planning. It is possible, however, to glean from the exper-

riences of others ideas which may be adapted, insights which may be significant. This paper, then, will present several possibilities for in-service programs in reading, some gathered from the recent literature of the International Reading Association, the rest from personal experience.

The literature of the sixties is rich in bright ideas which reflect these guidelines in action. Since the limitations of space require the selection of only a few of them, the programs have been chosen to represent a variety of types of situations: a massive program designed to serve a large city, a system-wide program planned to derive maximum use of library materials purchased with federal funds, and a state-wide program made possible through the use of educational television.

A program for a large city

An in-service program designed to serve the 20,000 professionals who serve the schools in New York City is described by Lloyd (4) as a "six-pronged action program." A summary follows:

1. The improvement of reading instruction received highest priority among supervisory personnel.
2. A task force of reading specialists was established to aid teachers to increase their effectiveness. Each specialist functioned in one of the following roles: as a reading consultant working with administrators, as a reading improvement teacher guiding new teachers, as a corrective reading teacher providing small group instruction for pupils with reading disabilities, or as a reading counselor in a reading clinic situation. In the latter two roles, the reading specialists also spent a part of their time working directly with teachers in in-service activities.
3. Two television series in the teaching of reading were offered; the first focused on the primary grades, the second on the intermediate grades. These programs were supplemented by workshops where discussion groups made use of prepared study guides.
4. Cooperative arrangements between the faculties of the colleges and universities and the public schools were

established, leading to joint meetings, cooperative research, and improved preservice and in-service programs.

5. Special materials, written to meet the special needs of the teachers in the city were published. They included: a guide to the sequential levels of growth in reading, a reading report card, and a collection of questions and answers related to reading.
6. A conscious effort was made to involve the teachers in research projects.

Each prong of this plan offers possibilities for implementation in a variety of situations. Any one of the six phases might provide the focus for productive in-service education; for example, the interest and influence of administrators as instructional leaders, the concern of each reading specialist, regardless of specific role, for in-service assistance to teachers, the cooperative planning of the faculties of institutions of higher education, and the public schools and teacher involvement in research projects.

A system-wide approach

The availability of federal funds has made possible the purchase of materials for instructional purposes. To assure the optimum use of library materials purchased through federal funds and local interest, Niles (5) recommends a system-wide program.

Since there had been no previous library services in the community, and in view of the fact that there would be only one teacher-librarian to serve the program during the coming year, it was decided to provide training for one teacher from each school. This training occurred in a summer workshop of one month's duration and was attended by ten teachers, two elementary principals, and the teacher-librarian who had already been selected.

This in-service program was cooperatively planned by the local reading supervisor and the director of the public library's services for children, each assuming the share of the responsibility related to her professional role. The

librarian provided information about book selection and library operation, including: cataloging, shelving, and circulation procedures; the reading specialist shared information on motivation, children's book interests, storytelling, record-keeping, and the teaching of the library skills.

Materials available to the participants included children's books, samples of library supplies, and a professional library related to the themes of the workshop. The activities of the program resulted in the preparation of a *Library Handbook* written by the participants to guide the teachers in their schools, thus multiplying the effect of the workshop by extending its influence to the local schools.

In the light of funding made available by the federal government and other agencies, this plan offers possibilities for the optimum use of any type of new material provided for teachers who have had little or no previous experience with its philosophy or use. These might include: programed developmental or corrective reading programs, reading or language arts services based on the theories of linguistic science, multimedia or individualized approaches to the teaching of reading, etc.

A statewide program

The Georgia State Department of Education and the University of Georgia joined in a cooperative effort to provide in-service education for more than 15,000 teachers in the state, through the production of a television course. Aaron (2), in describing the program, indicates its purpose was to assist teachers in evaluating their programs and in developing a rationale for change when and where it appeared necessary.

A series of eighteen thirty-minute videotapes was prepared and presented at intervals of one week, with each am shown twice weekly. Groups

of teachers viewed the videotapes with a discussion leader who assumed the responsibility for preparing teachers for the viewing and for a follow-up discussion at its conclusion.

These discussion leaders were prepared for their role via a television presentation during the week preceding each program. To guide their activities, a *Discussion Leader's Handbook* had been prepared to provide for each telecast: an overview of the content; ideas for preprogram preparation; suggestions for follow-up, both immediate and long range; and a bibliography. In addition, the discussion leader received, for each program, a listening-viewing guide and, where appropriate, practice exercises, rating scales, and charts and tables duplicating those to be shown in the telecast. Finally, for each telecast, an outline of the major points was prepared with space allowed on the page for the personal notes of the viewer. These, too, offered opportunities for increased learning to be derived during the viewing and in the follow-up discussion.

Again, the possibilities for adaptation and implementation of the ideas presented in this in-service approach are limited only by the imagination of the individual who plans the program. To be sure, educational television offers an opportunity to multiply by thousands the teachers who are served; but, where its use is not possible, the ideas presented in this statewide plan are rich in potential. Suggested implementations include: large-group presentations and/or demonstrations followed by small group activity led by trained discussion leaders; preparation of guides and/or outlines to be distributed before presentations or demonstrations; the provision of rating scales to be used by teachers in evaluating their own performances according to the set of criteria described by a reading specialist.

In this final section, the writer

wishes to share two personal attempts to provide effective in-service education to meet the needs of two groups of teachers in New Hampshire, the first a supervisory union comprised of nine towns with ten schools, the second a single town with two schools, one servicing grades one through four, the other grades five through eight. Neither of the programs provided university degree credits, thus neither had any requirements except that it serve the participants for whom it was planned.

The first program was initiated when the superintendent and the assistant superintendent of a supervisory union in the northern part of the state met with the writer and a graduate assistant to discuss possible plans. Since there were few reading specialists in the system, it was the hope of the administration that the program would aid teachers and principals to improve the quality of reading services in grades one through nine. It was decided to provide a series of four two-day sessions to be spaced a month or two apart.

Teachers and administrators were asked to recommend topics for the sessions and the following themes were chosen: Diagnosis of Instructional Needs in Reading, Grouping, Word Skills, Development, and Reading in the Content Areas. The format for each two-day program varied with the topic, but generally included one or two large group presentations followed by small group discussions and several work-study sessions. A professional bibliography of selected texts and journals had been purchased before the workshops and were available at each session. The librarian who participated in the program assumed the task of circulating these references for the entire duration of the workshops.

The program was staffed by the writer and a graduate assistant and the participants included most of the

teachers and principals, the reading teachers, and the superintendent and assistant superintendent of schools. Needless to say, the involvement of the latter two persons was of inestimable importance.

The first session focused on the components of the reading process and the factors inherent in the learner which affect the development of reading ability. This presentation provided a framework for a discussion of the diagnosis of instructional needs in reading. Working in grade level groups, an informal reading inventory was built based on the reading, language arts, and content materials used in the schools. Each work-study group was composed of teachers and one or more administrators. The completed inventory was edited by the writer and the graduate assistant, duplicated and returned to the teachers. It was agreed that during the month's interval between sessions each teacher would use the inventory to diagnose the reading needs of at least a small group of children in her class and return with the results.

The second session was concerned with grouping practices and implications for patterns of grouping suggested by the results of the inventories used by the teacher. In essence, the program for these two days attempted to suggest possible responses to the question, "How do I individualize instruction for the children in my classroom?" Some of the activities included a review of organizational patterns for reading instruction, discussion of guidelines for grouping gleaned from research, an investigation of the skills development sequences suggested by the authors of professional texts and materials, and the evolution of plans for grouping based on the findings of the inventories. Teachers agreed to return to their classrooms and experiment with grouping practices guided by two basic principles:

1) a group exists to meet the needs of its members and when it no longer achieves this end, it has no reason for being and 2) when any member of a group is not being served he no longer has a reason to be a member of the group. Thus, to be effective, grouping must be flexible.

The third session provided an opportunity to review the recent research in word skills development. Techniques and materials were discussed and evaluated and the writer provided several series of lessons from unpublished theses and dissertations. In reading level groups, teachers built and adapted materials and techniques to supplement their school resources. The results of the IRI and the skills development charts provided the framework for their activities. Once more the products were edited, duplicated, and distributed for the use of the teachers in their classrooms.

The final session focused on reading in the content areas. Teachers from grades one through nine investigated the structure of the academic disciplines and implications for effective reading in each area of the curriculum. The materials utilized in the schools were then examined and techniques and supplementary materials devised to provide possibilities for meeting the needs of each learner.

As indicated earlier, the administrators gave full cooperation to the point of active involvement in the sessions, thus continuity was built in to this in-service program. In addition, two of the participants have come to the University to work in the master's degree program for reading specialists.

The final program to be described was similar in purpose to the one reported earlier, the improvement of the quality of reading services. There was, however, a very real difference in them. Where the former program was designed for the personnel of many schools, this program was planned for

the personnel of one primary and one upper school in a single town.

To initiate the program, the writer met with the superintendent of the district and the principal of the two schools. It was decided that there would be a series of ten weekly meetings which would combine demonstrations with children and seminars with teachers. In the first session, the writer met with the participants and a list of topics was compiled. Beside each, a meeting date was placed and this list was posted in the two schools. Topics included: Readiness, Phonics, Study Skills, Reading in the Content Areas, and Evaluation. The list served two purposes: first, it indicated the focus of each meeting and allowed a teacher to decide whether she wished to attend; and second, it provided an opportunity for a teacher to request that the demonstration lesson related to the topic be taught to her class.

Each week there were two demonstration lessons taught in two different classrooms, each relating to the selected topic, and all teachers were free to come to observe the demonstrations. Later there was a seminar and the meeting began with a discussion of the demonstration and proceeded to a larger discussion of the theory the demonstrator had attempted to actualize. No teacher was required to participate, but the response was excellent.

The demonstration lessons made use of the materials being used at that time by the classroom teacher, in order to create a "real" situation; for example, one of the demonstration lessons in reading in the content areas was a multilevel adaptation of the social studies textbook.

In this instance, also, continuity of in-service assistance is assured. During the current academic year the university is engaged in an experienced teacher fellowship program designed to prepare counselor-reading

specialist teams. The fellows are presently in the field experience phase of their program and are working as interns in the schools. A team has been assigned to each of the two schools which participated in the program and will continue to provide a form of in-service education there.

All of the programs described have a single goal, the upgrading of elementary reading programs. In her 1966 citation address to the International Reading Association, Whipple (6) focused her attention on the identical objective:

The present goal of our reading programs is to enable each child to attain his highest capacity to read as he seeks knowledge, solves problems, deals creatively with ideas, and finds recreation and escape from the tensions of modern life. Now, far more than ever in the past, we must emphasize reading for continuous learning throughout life so that the individual can adapt to changing conditions of the future, for change has become a way of life.

If excellence is the goal and change a way of life, is education, for learner or teacher, ever complete?

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In-Service Education of Teachers

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TWO CONCEPTS are basic in teaching children to read. These same concepts are basic in teaching teachers. One is expressed by the term *developmental growth* and the other, by the word *average*. Let us review them.

Developmental growth and average are easily illustrated. Table 1 shows the measurements of shoe size in a normal third grade. The shoe sizes range from twelve through eight. The average size (three, by coincidence) corresponds to the grade level of the children although the arithmetic average is 2.95833.

The child who now wears size twelve is growing and will continue to grow. She will grow from size twelve into size one, two, and then three. There is no way for her foot to get from size twelve to size two without fitting size one at some time. This is the developmental nature of growth.

TABLE 1

SHOE SIZES OF TWENTY-FOUR THIRD GRADE CHILDREN IN SEPTEMBER

Shoe size	Number of children
7-8	X
5-6	X X X X X
3-4	X X X X X
2	X X X X X X
1	X X X X X X
12	X

Note that about half the shoe sizes fall above average and half below. Average is a midpoint. It is defined that way. Teachers recognize and can define average. Unfortunately many teachers ignore the implications of this concept in teaching children.

Books come in sizes as shoes do. A basal reading text with a numeral 1 on the cover is easier than a book from

the same series with a numeral 2 on the cover. Book 2 is easier than book 3, etc. Many people think these numerals indicate grade levels. They do not. The numerals designate the difficulty or size of each book.

Table 2 reports the book sizes of these same third grade children. A reading teacher should be able to measure book size as easily as a shoe salesman measures shoe size. The details of this process have been published previously.

TABLE 2

BOOK SIZES OF TWENTY-FOUR THIRD GRADE CHILDREN IN SEPTEMBER

Book size		Number of Children
6+	X X	2
5	X	1
4	X X	2
3	X X X X X X	6
3 ²	X X X X X X	6
2	X X X X X	5
1	X X	2

The range of book sizes in this class is from book 1 to above book 6. The average is 2.9166. About half the children fall above average and half below. Note the implication of the word *size*. A child who is reading book size 1 is expected to increase his reading ability developmentally through book size 2, 3, 4, 5, etc. The term *size* implies growth.

No stigma is attached to saying that a child wears a size 3 shoe. The size is descriptive and free of emotion. Saying that a child is achieving at book size 5 is descriptive and free of emotion. Emotion permeates immediately if a teacher says a child is reading at fifth grade level. Book size 5 implies that the child is growing and will grow into book size 6, 7, 8, etc. Grade 5 labels his achievement as good, average, or poor depending upon his age and grade placement and obscures the developmental growth of reading. Pupil achievement at grade level becomes the goal: every pupil must be at least average.

should be obvious that stretching

the smallest feet to at least size 2.98533 would not bring these children up to average because the average would go up. Any teacher who asked parents to stretch their child's feet would be laughed at or fired but certainly not taken seriously. A third grade teacher who sends home book three with every child is taken seriously. Third grade children are expected to master book three.

Children accept the concepts of shoe size and book size and average. They know they are growing. They know some of their friends are bigger and some are smaller. They know that some of their friends read well and some have trouble reading. They attach no stigma if the school and home do not. A shoe salesman would lose customers if he gave report cards with A's, B's, C's, D's, and F's; A's for big feet and F's for small. The shoe salesman is concerned about a comfortable fit, not an emotional label of goodness and poorness. No one talks about a good shoe size or a poor shoe size. Teachers frequently talk about good readers and poor readers, labels which reflect the attitude of the teacher.

Table 3 is hypothetical. It reports teacher size, or teaching ability, of thirty primary teachers. A high score, a large teacher size, means excellent teaching, and a low score, a small teacher size, means minimally acceptable teaching. Half the teachers are above average and half are below. Just as there is a *poorest* reader in any classroom there is a *poorest* teacher in any school. Eliminate the *poorest* reader and another takes his place. Eliminate the *poorest* teacher and another teacher is now the *poorest*. The adjective *poorest* is not fair. It is qualitative; it implies not acceptable. The *poorest* teacher is certificated and most likely teaching fairly well. Some one is poorest in any group no matter how good the group is. Terman had his *dumbest* genius.

TABLE 3

TEACHER SIZE (HYPOTHETICAL) OF THIRTY
THIRD GRADE TEACHERS

Teacher size		Number of Teachers
10	X	1
9	X X	2
8	X X X	3
7	X X X X	4
6	X X X X X	5
5	X X X X X	5
4	X X X X	4
3	X X X	3
2	X X	2
1	X	1

The poorest teacher may be a first year teacher. She will be a better teacher a year from now. There is no question that she has the potential to improve each year in her ability to teach. Teachers and teaching ability come in sizes. Teachers of teachers are hypocrites if they don't believe that teaching ability is developmental and can improve.

Children learn to read as they accept themselves, and as teachers accept children's sizes and the implications of their sizes. Teachers improve in their ability to teach as they accept themselves, and as teachers of teachers, supervisors, and administrators accept teachers' sizes and the implications of their sizes. Education has suffered long from the delusion that all teachers are of equal ability. The pretense that teachers are of equal ability leads to supervision which assures through curriculum guides that every teacher does the same thing. Classes become rigid, and teaching is mediocre at best. Teachers improve in teaching when administrators and supervisors recognize each teacher's strengths and work to develop programs which openly recognize these individual differences. Every teacher can make a significant contribution to the learning of children.

Actually administrators and supervisors openly recognize many differences in making teacher assignments. Skilled musicians serve as music teachers, mathematicians teach math. How-

ever, open recognition stops at this point. There is a fear that open recognition of teaching talents will require merit pay. Fear of merit pay is one of the most constricting forces inhibiting in-service teacher education. Merit pay implies *unmerited* pay. All teachers are meritorious; some are more meritorious than others. Although this may sound like Big Brother speaking from *Animal Farm*, it is true. Some of Terman's geniuses were *more smart* than others. We erect educational windmills by putting qualitative judgments of goodness and badness upon performance which is above or below average, and we spend time fighting the inexorably turning arms. We must apply the understanding of average and developmental growth in in-service teacher training programs.

A program

We recently completed a 54 week NDEA Institute in developmental reading at the junior high school, training twenty teachers. The designation junior high was used loosely since the teachers instructed children from grades three through twelve. We specifically chose teachers of all levels of teaching ability as far as could be judged by transcripts and letters of recommendation. We firmly believed that all teachers, teachers of all sizes, could improve in their teaching.

The summer program included four college courses: 1) Individualized reading instruction; 2) improvement of instruction in reading in the secondary school; 3) observation and practicum in teaching reading at the junior high school level; and 4) seminar in reading education. These courses required 170 clock hours, not counting time for study or preparation.

During the academic year each teacher was visited regularly by the director and an assistant who observed his classes and assisted in or demonstrated the teaching of reading. The

visits took two and one-half to three hours. The supervisors met with the teacher after each visit to discuss the observation and the director followed each visit with a personal letter of evaluation. The letters summarized the lesson observed, reflected fully upon the observation and the follow-up discussions, and offered comments and suggestions. Some letters were brief; many were two to three single-spaced typewritten pages. The letters seemed to be vital in making the visitations successful.

There were monthly seminars at the college and each participant worked on a special project for the year. Each teacher demonstrated a lesson at the Washington Organization for Reading Development Conference. Each attended the annual International Reading Association conference in Seattle in May 1967.

Four university professors served as evaluators. Each observed at least five teachers, spending approximately one half day in each classroom visit and each participated in an evening seminar.

We had set the improved teaching of reading as our general goal. We had felt that this would be accomplished if we were successful in treating our twenty participants as individuals and could get them to accept the implications of pupil size and teacher size. Overall the Institute was outstandingly successful. The kudos have been reported elsewhere (1, 2). Some of the effects of our emphasis upon pupil size and teacher-size can be sampled by excerpts from the participants' writings as reported in *Supervision of Reading Instruction in Junior High School*.

One participant returned to a federally financed reading classroom in a combination elementary-junior high school. He wrote

Many reading teachers face a problem each fall. We spent the summer at a large campus school working with

children on a one-to-one basis. We used the latest teaching . . . materials. . . .

Then we return to our own classrooms! Our new or rekindled spirit, still fresh and glowing from summer-school, begins to flutter and fizzle as we think of meeting individual needs in our inadequate local school environments. I'm sure many have shared this frustration as the one-to-one teaching becomes 35-to-1 on September 1st, and the lively discussions change to talk of the "bad kids," favorite recipes and will we get more money from the school board as we are certainly underpaid.

This year I have had a quandary instead of a problem. I could no longer use the impracticality of graduate school lectures and campus school techniques as an excuse for falling back into the "old" school routine. For my classroom is as up-to-date as a spaceship, and my methods background as meaningful to the students' welfare as it is challenging the best my creative ability has to offer. I have but one job—to teach the art and appreciation of reading to each student coming into my room. I have tape recorders, Craig Readers, Controlled Readers, uncontrolled readers . . . a four thousand volume library. . . .

The solution to my quandary was fitting the materials to the students not the students to the materials. Too often reading classes are supplied with one set of books and each child must slosh around in his copy. Every teacher of reading must seek a variety of materials for each interest and for every achievement level. Finally, we should spend our time in diagnosing the kids in our classes as we now spend in grading the students in our class (pp. 18, 20).

Another participant was one of several junior high school teachers who were expected to follow a prescribed program:

The teacher is the key to effective learning. Although these words are frequently spoken by professional educators, it is questionable if they believe what they say. There are some who will insist that a particular method, approach, or grouping is best for all youngsters or all teachers. This is fallacy. As there are individual differences among children there are also individual differences among teachers. A certain technique, method, or approach that works well with one pupil may fail with another. What works for one teacher may fail with others. This cannot be stressed too much. The teacher is always the key. When a teacher is convinced that a particular method, approach, or technique is suited to him

then this is what he will have the most success with.

Since there are individual differences among teachers, it is ludicrous to expect the same procedures to work the same way with all teachers. Yet such is often the expectation in reading programs (p. 26):

A participant from a small rural school commented about teacher learning and pupil size:

How then does one "spark" and foster interest in reading?

1. Teachers must be learners. Their preparation is never complete. Teachers must keep up by reading professional publications, increasing their personal knowledge of books and materials, and actively participating in and promoting activities that expand their learnings. The need for continued study and learning, as we have gained through this institute, is imperative.
2. Teachers must show a genuine interest in children and their growth both academically and personally. They must diagnose individual achievement and gear teaching to these findings, remaining flexible and willing to adapt to the students and their needs (p. 29).

One participant had "remedial" reading at the high school level enrolling volunteers who had failed English in previous semesters. He met with two hundred-fifty students each day. He reported several projects. Three follow:

Project—Student Tutors

I added student tutors because I just couldn't find time to get to know all of my students. When I asked for volunteers for the project, one boy said, "Good idea, kids speak the same language." Nearly all my "old" students volunteered immediately to help the newly enrolled students. Some volunteered to work as teacher's aides. One student said, "There are quite a few students and not all have the same interests. You do need help."

I didn't assign students to tutors. I let the tutors choose the students they wanted to work with. Several small groups were also formed. I gave assignments, instructions, and time schedules and then let the tutors take over.

With the student tutors taking care of most of the details and much of the teaching, I found the time to get to know my students. I got to know tu-
better as well as non-tutors. The

students said, "Having kids help each other seems like a better way to get more things done. We like it better." "Kids don't confuse you with a lot of things you don't have to know."

Project—Reading Club

I agree now that "kids read with books, not machines." I could see that my students did not read enough. To get everyone to read more books we planned a reading club program. We decided on a goal of one thousand pages for membership to the club. It was a real challenge for all of the students. We needed a way to keep track of books and articles read, so we made a reading club record form. Students were allowed to read any book they could enjoy, and were guided toward easy materials if they were poor readers, as many of them were.

I urged everyone to list only those materials read for reading class, not other class assignments. As soon as our reading club bulletin board was put up, qualified students eagerly signed in.

I gave certificates of achievement at a special one thousand club party. Every student who had read one thousand pages got a certificate and shared our 1000-cake. At the party students said: "Certificates that you get make you feel well, it gives you a boost." "It's fun to get awards." "The certificates were a good idea and the party, too."

We soon added the two thousand club and three thousand club. Students said: "I'd like to see how high I can go and if I can keep up with everyone at the top." "I'd like to see how much I have read since the beginning of the quarter." "This is a good way of following my improvement."

After reading 3,000 pages, a student received a *Good Work Report*. This sheet was an exact copy of our school's *Poor Work Report* except the word *Good* replaced *Poor*. This surprised many students and literal tears were replaced by smiles and laughter when several students read their work slips which looked so much like their accustomed rebuke.

We added new clubs as our quarter ended. Students said: "I feel I am accomplishing something worthwhile." "I used to hate to read." "I am beginning to read. I hardly used to read at all." "Keep this up and I might turn into a bookworm." This project grew into the ten thousand club before school ended.

Project—Book Reports

Kids hated book reports, so we kept only a record of pages at first. They sensed a need for something more. They wanted new goals for the reading club so we added some more. We set five levels of record keeping or report-

ing. Level one was keeping a page tally as we had been doing. Level two required title, author, and a short summary, level three, four and five were each more difficult with level five being a critical review. Students are reporting on all levels. They like to challenge themselves (pp. 36, 37).

Participants reported frustration with administrative rigidity which vitiated pupils' progress. One participant gave a "free hour" to daily tutoring of the twenty worst readers in a junior high school. He reported as follows:

Week Number 10

Today ended the class. I'm sorry and most of the kids are, too. They have asked if we can't continue. We can't. It is the end of the quarter and they must take their academic work. I've volunteered to give up my free period but they can't be excused from class any longer. I fear the old pattern of behavior difficulty will manifest itself again for most. How can a child like Rick, physically mature, academically a misfit—how can he not be on the conscience of all of us who mouth quality education and then fall so short of making it a reality? If the schools are a mirror image of what we want, then many children who are not getting an individualized education because we are denying it, become an albatross around our professional necks.

One Month Later

I have watched the classroom performance of the twenty since they are back into their academic classes. There is little or no carry over. The time and success reinforcement were too limited. I'm still frustrated because I know we offered a candy bar—gave a nibble then snatched it away (pp. 42, 43).

Guidelines for in-service education:

The teachers of teachers, the supervisors, the administrators, or the university professors are vitally important to the success of an in-service program. A good teacher can teach under adverse conditions. However, there are guidelines which can structure in-service programs.

1. Fit the program to the personnel. Be cognizant of differences among both the teachers of teachers and the teachers themselves. Provide flexible programs which are available to all teachers. Make certain that the pro-

gram is flexible enough to aid the master teacher as well as the beginner.

Be open in the recognition of individual differences. Don't waste time trying to determine which teachers can benefit from the *planned program*. All teachers improve if the teacher of teachers believes that they can and the program environment is flexible so that teachers are free to improve.

2. Programs should extend over long time periods. A combination of intensive short term study and extensive long term application works well. Short term programs are largely ineffective in changing teachers' classroom practices if there is no follow-up. A short term program may be one afternoon or a summer session. Long term is a school year or more. A series of short term sessions, extension college courses, should not be confused with a long term program.

3. Have a program which plans to use the international expert, the local university professor, the school supervisors, teachers, the teacher aides, and the student teacher. Have teachers of teachers who are at different levels of professional competence.

4. Provide support and challenge. Challenge is suited best to the intensive short term work; support is mandatory during the long period of practical application as teachers innovate. Most teachers need support more than they need challenge. They already know how to teach much better than they are practicing. The praise, the interest, or the assistance from a student teacher or teacher aide may be more important than a suggestion from an expert. Support is easily achieved through seminar meetings of teachers working on the same problem. Praise from colleagues struggling with the same problems is particularly gratifying. Praise may be merely someone who listens without commenting as a technique is explained or justified. Support comes also from knowing that

other teachers are having similar problems or worries as new programs are tried.

5. Conduct meetings and seminars which can be exemplars. Teachers will emulate models: teachers do teach as they have been taught. Teachers will change their behavior as they experience new classroom environments. Openly recognize teacher differences in the seminars if you expect teachers to openly recognize pupil differences in their classes. Encourage free discussion and evaluation in the seminar and teachers will begin to emulate this, encouraging free discussion and evaluation in their classrooms. Talking about individual differences will not get teachers out of lockstep teaching. Talking about individual differences and then treating the members of the seminar openly as individuals can get teachers to break lockstep. Telling teachers to read professional books will not make teachers read professional books. Telling teachers about the books you have been reading, reading excerpts from these books orally, and making these books available for reading during seminar will make readers of many teachers.

6. Demonstrate with children, preferably the pupils of the teacher or teachers who are watching the demonstration. A teacher of teachers should be prepared to demonstrate techniques which he wants teachers to try. One demonstration is worth two dozen lectures. A demonstration may seem inefficient if only one teacher observes, but if it changes her behavior it is highly efficient because she will share the change with other teachers in seminar.

7. There are some advantages of mixing teachers from several schools. Teachers from different school buildings or different school districts do not have the same administrative *they* to blame for rigid conditions.

Programs must recognize *they*

and work to eliminate *they*. This is the *they* of a teacher who says, "I'd like to teach differently, but *they* won't let me."

We once thought *they* was the uncooperative administration and supervisors. We have changed our minds. *They* is all teachers who feel threatened when one teacher succeeds. *They* is all teachers who feel that the staff coffee room is a place for discussing only recent games or the misadventures of poor students. *They* is all teachers who teach traditionally because it is the tradition. Teachers unwittingly lock themselves into *they* by not acknowledging the differences among teachers. *They* is the teachers who want to be average. *They* is the teachers who want the curriculum guide so that they know what to teach.

Any teacher who breaks from tradition threatens *they*. Any teacher who does not care about average threatens *they*. *They* is those teachers who check with their colleagues so that what is expected can be reviewed, pressuring any inspirational *non-they* into conformity. *Non-they* is those teachers who check with colleagues to get new, exciting ideas to try.

When teachers recognize themselves as part of *they*, teachers of teachers can help replace *they* with a *non-they* which respects and fosters individuality. The strength of teachers is in their individuality.

9. Make professional materials readily available. Pupils read more when they have a classroom library as well as a school library and town library. Teachers will read and discuss professional writings if the books, journals, or reprints are on the coffee table or in a rack beside the coffee pot in the staff room as well as in the curriculum library. Reprints should be distributed to every teacher. Many will not read them but some will, and since there has been total distribution some will discuss what they have read and the non-

readers will be encouraged to read some of the articles. Reading professionally can become a habit, but not until it starts.

A challenge

Teachers, beginning teachers and teachers fully certificated with twenty or more years of teaching experience, welcome supervision and in-service programs which are directed toward improved teaching. Teachers probably do not want the stereotype of old-fashioned supervision which judges their teaching and prescribes what is to be taught. Teachers do not want to be told that they are good or poor. Teachers recognize what is poor without being told. They do not want a traditional report card. Teachers want the opportunity to learn how to teach better, they want support as they try to teach better, and they welcome in-service education which achieves this.

Local IRA councils can offer such in-service programs. Councils do not see this as their role now. Traditionally, colleges and universities have sponsored workshops and seminars. The main reason is that colleges give credit. Unfortunately college courses are short term and the motivation is frequently external; the teacher's motivation is to gain five credits and the professor is expected to inspire. Non-credit workshops and seminars are most frequently within a single district or school sponsored by *they*.

Local IRA councils seem ideally suited for sponsoring seminars which meet approximately monthly and are attended by teachers who want to study and discuss the teaching of reading. The threat posed by the supervisor or administrator is gone. These seminars can be organized by grade levels or interests. They can provide opportunity for master teachers to serve as leaders. They can effectively

fight *they* and explicate an understanding of *they*. They can act as a clearinghouse for interschool visits so that visiting days are more than days off. A teacher will choose to visit a colleague because the colleague has been discussing reading projects in seminar.

Ideas presented by the teacher-leader must be sold by their worth. A seminar group will evaluate, because they are under no administrative or credit-grade pressure to comply. Teachers become motivators of other teachers as they motivate themselves. These seminars could become vehicles for conducting research, particularly when a variety of teachers or a variety of teacher observation is needed.

Initially these seminars will be a work of professional devotion. I believe school systems will contribute financially to support a local council when a council demonstrates that it is professionally competent and can change teacher behavior. School systems can give released time to teachers for seminars; they can supply books and materials; they can contribute to the honoraria of speakers; they can provide meeting places. They will utilize the local councils in mutually planning in-service work for their teachers.

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In-Service Education: The Realization of the Potential

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THE TEACHING OF READING has become a highly skilled task. The day is

gone when teachers ask that each child take his turn in reading out loud. The day is gone, too, when teachers follow the teacher's guide slavishly, so that in any given time during any day thousands of children might be asked the same question concerning the same story from the same book.

Reading conferences surround teachers. As one goes from meeting to meeting, watching demonstration after demonstration, it is interesting to watch, but does not meet the needs of a given teacher. Often the conference features speakers that advocate a type of program completely alien and impractical to the teacher in the classroom. Many times the lecturer seems to live in an ivory tower somewhat removed from the world of children and the daily task of teaching children.

It does not seem to make much difference whether a teacher has been in business, in the classroom for a few years, or just out of college, she has problems confronting her that most books and lectures do not seem to reach.

The writer firmly believes that the initial success of in-service education depends upon the definition of in-service education; what it means to the administration, to the teachers, and to the consultants in charge of it. If the entire staff cannot view in-service education as an aid to improve the teaching of reading in the classroom and, basically, as a behavior changing development in the teacher then the whole program is in jeopardy.

The most promising aspect of changing techniques in in-service education is the new view that administrators are taking toward post-service training. Their willingness to allow teachers to have released time, to set aside days for workshops, to allow teachers to visit other classrooms and schools, and in general, foster an aura of learning in the school community is urging and encouraging. It is

heartening to see that administrators are hiring specialists to take over the job as resource person to the staff, rather than using a classroom teacher who likes to teach reading or depending upon the principal who might not know enough to give the teacher real assistance.

Another aspect of the changing ideas in in-service education is the use of many techniques as well as a diversity of programming that can pinpoint the kind of help individual and groups of teachers need or request. The day of the formal in-service program is not on its way out, but certainly has been placed in the proper perspective of the entire in-service programming. In-service education can be viewed as demonstration lessons, discussion of reading lessons observed by the specialist; workshop days set aside for particular types of instruction taught by the specialist, a reading committee, or outside consultants. The use of training films, video tapes, as well as the new programming machines such as the *Study Master* can aid teachers in sharpening their teaching techniques. The variety and diversity of programming can be accomplished by creative and innovative thinking.

The district that allows only one type of in-service education is doing a disservice to its teachers as well as pupils. If we are sophisticated enough to realize there is no one way to teach reading, so we should be sophisticated enough to realize that there is no one way to have effective programs. It is essential that the teachers feel that they will grow professionally as a result of what they are learning and sharing with the specialists and each other. When the program is cut and dried and is all lecture and little participation, in-service education is almost wasted effort. Good in-service programs by their very nature must be the "how to" as well as the "why" in order to have real meaning for the teachers.

The role of the consultant

The consultant is in a unique position in the school structure. He functions primarily as a resource person. He is most effective when he has the complete cooperation of the administration, but can still operate satisfactorily, when he does not. By the very nature of his role, he can make an ordinary reading program an excellent one.

How the consultant views himself in his job is important and vital to the entire program. Regardless of what the administration tells him the job is he must set standards of behavior as well as possess the knowledge of reading to deal properly and effectively with the total staff.

The first duty of the consultant is to be available to the entire staff and not place himself in his office as prescriber of the magic words that will improve instruction. If he considers reading a discipline in itself, he isolates himself from the entire school community and creates division rather than unity. He cannot place himself in the position of telling teachers what to do or how to teach any given subject. The reading specialist, instead, should think of himself as an observer, a listener, and a student. The consultant can learn as much as he can teach and do a more effective job as a resource person. It has been often stated that the reading consultant needs to go into the classroom and observe the teacher in the act of teaching reading before he can do anything else. Certainly, there are other means of finding out weaknesses and strengths of the reading program, such as examining the testing results and having discussions with administrators and teachers; but only through observation can one see what is actually taught, rather than what teachers think they do in a classroom.

It is necessary for the reading specialist to ask himself as he observes:

what does the teacher do in the reading lesson that makes it a success or failure? Is the classroom management such that the teacher maintains good balance? Are the lessons too long and tedious? Is the story that is read being "beaten to death?" Does the teacher know how to ask questions that suit the needs of the children and fit the story being used? Does the teacher do all the talking and repeat the answers of the pupils? Does he understand word analysis skills and teach them effectively? Do the skills development plans fit the needs of the children and are the follow-up activities interesting, varied, and helpful?

It is important that the consultant confer with the teachers concerning their understanding of what is a developmental reading lesson. It is dangerous to assume that all teachers know this. The consultant would want to know if the teacher understands the different kinds of critical reading skills, the various types of vocabulary skills, organizational skills, and word analysis skills. He would want to know how the teacher plans his lesson. Not only is it vital that both teacher and consultant know the short range plans of the reading lesson, but also the long range plans. Is the teacher's object to get through the book, have the pupils pass a standardized reading test, or the test at the end of the book and then go on to the next book? Or, is it his goal to make reading an enjoyable act as well as a real learning situation for all concerned? Is he not only teaching his pupils to read what the printed page says, but also what can be extracted between and beyond the lines? The crucial question remains: does the teacher know what reading is about and why we teach it?

With these types of questions in mind the consultant can begin to plan in-service education for his school to best suit the needs of pupils and teachers.

A functional program.

A major concern of the reading consultant is to keep the program functional. By the time the teacher is in the classroom he is no longer searching for the philosophy or the psychology of reading but is applying what he has discovered about the proper teaching of reading.

The reading consultant who isolates himself helps no one effectively. He must sell himself as an individual who is willing to assist in any way possible before he can sell a reading program or methods. It has been the writer's experience to have success with an open-door policy, invitations must be extended to come in to browse among the professional books and materials; to have coffee and a chat; and to be willing to talk in the halls and be ready to answer any questions that might be asked. There is nothing that upsets a teacher more than to ask a question and have the consultant answer it a few days later or, worse yet, the following week. If the teacher asks a question, it needs to be answered as soon as possible. The open-door policy becomes meaningless when the consultant cannot, in this instance, give immediate service.

The consultant can also resort to sending out questionnaires, faculty meeting pep talks, and a looseleaf notebook in the office filled with his wares. In this way the teachers begin to feel that the consultant is there to help, not to criticize, and will be glad to ask for assistance when he thinks he needs it.

Since the role of the reading consultant is to help all teachers do a better job in the teaching of reading it should be recognized that many teachers who need help do not realize it and might not call on the consultant. Thus the consultant needs to rely on his observations and findings in order to plan effective in-service education.

It is helpful if the consultant makes

a checklist of all the aspects of the reading lesson. Aaron, et al,* in *Conducting In-Service Programs in Reading* give examples of checklists that can help the consultant evaluate the reading programs. A survey can be carried out in conjunction with the checklist and the testing program of the school evaluated to show weaknesses. These measures can expedite the need for in-service education and can be an effective weapon for the consultant.

Planning for the time

In previous years most in-service time was scheduled after school or on special days set aside by the administration as in-service days. This type of programming is still going on but has its drawbacks. The difficulty of having teachers come after school when they are tired can often result in lethargic programs. The in-service program often is designed to cover too much in the attempt "to get in as much as one can" during the short time set aside for the program.

Many school districts now have orientation days for new teachers before the school year begins. This can be utilized by the reading consultant to explain the program, go over the handbook and reading materials the teacher will be expected to use, and generally explain procedures and answer questions. The reading consultant should be wary of trying to do too much at this time. Administrators have stated that every school consultant wants to go through the same procedure with new teachers, and at the end of the orientation time the new teachers are somewhat confused with all of the guides and procedures they are expected to use and follow. The result is that they follow none of them.

*Aaron, Ira, Byron Callaway, and Arthur Olson, *Conducting In-Service Programs in Reading*, Reading Aids Series, Newark, Delaware: International Reading Association, 1965, 4-5.

It would probably be wiser for the consultant to use the services of a reading committee, made up of good reading teachers from each school, assigned to help the new teacher with the reading program.

The new trend in programing is to arrange for released time and have the new teachers, as well as other teachers, meet with the consultant in a series of planned workshops twice a week for a number of weeks. When the teachers have settled in their jobs and the reading consultant has visited them in the beginning of the year, the types of in-service programs can be planned to serve the needs of the teachers. If the school cannot give the teachers released time, then the same type of programs would have to be planned after school. It is difficult for the reading consultant to plan on using the district wide in-service days as his exclusive property, since many other areas of the curriculum wish to utilize the same days. Thus, the consultant needs to plan on other time for his in-service work. He would consider the district wide in-service days given to him as bonus days and plan accordingly.

Planning the program

There are a few basic programs that the consultant can depend on almost every year. With the help of the reading committee, the consultant can give wider service and follow up with good results. New teachers appear to need help in the area of planning a good reading lesson, maintaining balance in terms of time and skills, as well as planning for meaningful activities and questions, and teaching word attack skills beyond the first grade level.

The reading committee should meet with the reading specialist long before the actual in-service days have begun. They must go over the plans for the program as well as receive training in leadership. The reading committee be made up of teachers interested

in and doing a fairly good job in the teaching of reading. It might also be helpful for one administrator to be on the committee. The role of the consultant is one of guidance and leadership. He does not have to stand up at all workshop meetings and spout wisdom. Small groups work effectively, with each group being led by a member of the reading committee.

Teachers should be encouraged to try planning work sheets on their own to be used with the children, and report back at the next in-service meeting to discuss success or failure. Time must also be set aside to revisit teachers after the in-service program to check success of training as well as opportunity for individual aid.

Off the cuff programs have their merits, but the consultant would probably be the only one that could handle this. The planned program, in the long run, benefits more people and will get better results. Total commitment to in-service education can produce more effective teachers as well as more cooperative teachers. When the program is planned so that the teachers will use the new knowledge they have gained in their classroom, then it will be successful.

An in-service program

It should be the practice of any reading consultant to sit down with the administrators to discuss what they would like to do to improve the reading program in their schools, the needs of their new teachers and ways of improving the teaching techniques of some of the "experienced" teachers.

At the same time it is important to discuss reading materials and some of the research findings that have been published concerning the problems. Many administrators who may have previously impeded progress can become allies when they have an opportunity to sit down with a knowledgeable reading specialist. When the spe-

cialist does not do his homework in this respect he is being remiss.

Once the reading specialist has the green light for his in-service programs, his next step is to meet with reading committees, discuss the problems with them, and begin to plan a constructive program. Small groups are planned for, each committee member acting as a group leader. The reading specialist goes over objectives and methods with the committee. If role-playing is to be used, then committee members volunteer and practice sessions are set up. The committee is ready to go into action when needed.

It is also imperative at this time that the consultant visit the classroom and observe the teachers at work. The consultant should plan to return the next day, if necessary, to see an entire reading lesson. Regimentation often creates confusion and sometimes the teacher puts on a show for the consultant. Once the observations are complete the consultant must arrange for a conference. It is helpful if the consultant does not take notes while visiting. This is often disconcerting to the teacher. The consultant needs to be wary of his opening remarks to the teacher, and if the in-service program is to succeed the reading consultant must never be in the position of a critic. One successful consultant often begins a conference with this: "What did you think of the reading lesson I observed? What did you like about it? Is there any part of it you would like to improve?" From these beginnings the teacher is glad to discuss problems she is encountering, and usually asks the consultant for help.

The reading consultant then asks the teacher if she would like a demonstration lesson. No teacher ever refuses this ploy and a time is agreed on. The consultant should not try to teach a perfect lesson but one that he would probably expect a good teacher of

reading to use. After the completion of the demonstration, another conference is held and the teacher and consultant go over the parts of the lesson that differed from what the teacher usually does.

The next step toward the workshop meetings should be centered around grade level meetings with the teachers to discuss mutual problems in the reading lesson. It is also helpful if the teachers bring with them test results they might have concerning the reading program. The consultant can discuss how to evolve a program around the weaknesses shown by tests, whether teacher-made or standardized. At this time the in-service workshops are discussed and a program planned with the teachers to meet their needs. It is rare that the reading committee and the teachers are not together on what the needs are. The planning is flexible enough to add to it if teachers express needs that the committee have not planned.

The workshop meetings are planned for the equivalent of one period or one hour, depending on the time factor. After each learning session the teachers are urged to try out what they have learned that day and report back their progress.

Each lesson is usually based upon a story that could be used by the teachers in the classroom. The material is taken from a series not used in the school. The teachers are given the opportunity to write out or plan what they would do through discussion. The technique is introduced by the consultant or leader, and then the team leaders take over the work within smaller groups. When the work is completed the teachers are asked to share what they have written. Role-playing is often involved. As an example, if the task is to learn how to ask inferential questions, the leader may use one or both of the following

techniques. The leader will have the teachers read a selection and then ask them only questions that are inferential in nature. The teachers would respond as if they were the class. The one method is done skillfully by every teaching standard. The other technique is for the leader to plan a good lesson, but use every poor teaching method at her command. The teachers are then asked to analyze each lesson, methodology, as well as manner of presentation. Through this method undesirable teaching techniques and practices are brought up without re-primations and the leaders can show change or modify teacher behavior and practices without pointing the finger at any individual.

At the second session the actual work can begin. Transparencies are often used to introduce new skills. After the skill is introduced, such as asking inferential questions, each teacher is given a short selection, one or two practice questions are offered and then the teachers are given ten minutes to write as many inferential questions as they can from the short selection. They are then discussed. The next step is to work with an actual selection that the teachers plan to use in the classroom. The leaders help the teachers plan the questioning, and the teachers are then asked to use them in the classroom. The final step is to bring back the results of the material they planned. During each session, a ten minute question time is set aside to discuss new problems that have arisen or material that did not work out as expected. At no time is a teacher shut off. They are encouraged to ask questions until they get answers that satisfy them and serve their needs.

Principals should be asked to attend the sessions so that they too, can keep up with the program. One of the reading committee should serve as secretary and record each session's pro-

ceedings. These minutes can then be distributed before the next meeting. Workshop programs are usually more effective if they are carried out over a period of time. Six to eight sessions are recommended, depending upon the program planned. Flexibility can be observed by allowing an extra meeting or two if the teachers request it, or if the reading committee feels the necessity for more time.

When the workshop sessions are over the reading consultant should plan to revisit the teachers to see how effective the in-service program was. It could also prove fruitful to send out a survey to evaluate the in-service program. This would aid the reading committee to make changes if necessary.

Conclusion

Regardless of the type of in-service programs the school offers to its professional staff the major emphasis should be on practicality. The reading consultant should remember at all times that he is a resource person, a person trained to help those who need help in the teaching of reading, and the professional growth of the teachers he works with are his primary concern. The success or failure of the in-service program depends largely upon the rapport of the consultant with the rest of the staff.

In-Service Education

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TEACHERS IN SERVICE are grappling for improved instructional techniques to meet the needs of children in the reading program. Teachers with many years of experience in the classroom are searching for means of meeting the unique capacities of children with whom they work. New and experi-

enced teachers are inquiring about and experimenting with teaching reading, utilizing the numerous varieties of interesting printed materials available. In-service teacher education is designed to aid teachers in practicing new techniques for instruction, meeting individual needs of children, and becoming acquainted with a variety of materials for instruction.

Initiating an in-service program

The availability of federal funds has aided immeasurably in providing in-service programs for teachers. Superintendents of school districts have pooled teacher interest and this has spurred administrative action in the direction of in-service studies of reading instruction. Principals, supervisors, and consultants have requested classroom in-service instructional assistance. The interest is strong, the initiative compelling, and the results rewarding.

Who participates

Attendance at the programs was by invitation. Members in attendance made a personal decision to attend one, some, or all of the meetings held for one, two, and three hours once a week over a period of five to ten weeks. It is interesting to note that in all instances, although weekly attendance members varied, membership of the groups increased from the opening meeting to the close. When a program was a city-wide endeavor there was a small opening group. In one county-wide program the number exceeded all expectations. Classroom teachers, consultants, supervisors, principals, and superintendents of schools were among the members present. The desire to study and explore the effectiveness of reading instruction through curiosity, experimentation, and innovation was at a high level.

How the programs proceeded

Discussion was a stepping stone to activities embodied in the programs. Members of the groups were actively involved in setting the criteria for the programs. Initial members stated what they hoped to gain from an in-service program and aided in planning the total program. Suggestions included word-learning activities; techniques of questioning to improve comprehension; the how-to of conferences with individuals and groups of children; materials of interest for low-achieving, older young people; evaluation of reading performance, critical reading-thinking, word structure and frequency of use; how to help the child who is not succeeding; the question of phonics instruction; how much, how often, with whom, and the how to; meeting personal interests; managing a classroom of 30 or more children while attempting to meet personal interests and needs; obtaining books to meet a variety of interests and needs; children's progress reports; and the initiating of more personal reading programs.

To satisfy the suggested needs additional discussion was a part of each meeting. Films, tapes, and demonstrations were introduced wherever feasible. Lectures were kept to a minimum. Emphasis was placed on teacher understanding of four important facts about words: words have meaning; words have a uniqueness, words may be changed by adding endings or beginnings, and words are made up of letters or groups of letters representing sounds which are related to many other words.

If we desire to develop in children a real interest in reading we frequently ask the wrong questions about reading. In discussing a book with an adult, how often do we ask the name of the main character or discuss minute details concerning the story? Are we

not encouraged to explore more literature by knowing the most important part of the story as it is reflected in the personal relationship it has to the life of the reader? Do we as adult readers place every book we read on the same high level of importance? Every story is not equally valuable to each of us. Children need to be helped to evaluate what is of importance to them; all stories are not equally interesting or exciting.

Kinescopes of teacher conferences with children who were reading tradebooks of varying degrees of difficulty and interest were available from the research study of Lyman C. Hunt conducted at Pennsylvania State University. Some of these kinescopes were viewed and discussed. Demonstrations with children about their interests in books and the personal values developed through reading extensively proved to be a helpful and profitable experience for those attending the in-service programs. During the fall of 1965 a series of programs on reading instruction was televised over a local television station.

Tapes of prominent reading educators provided another avenue for study and discussion. The philosophy of what reading instruction is stimulated evening discussion: Are young readers really interested in tearing words apart and putting them back together again? Is this not study for more advanced learners—young adults? Does the fact that reading is talk in print make more sense to a beginning reader? Is a child reading when 1) he can make the sounds of all the words or 2) when he can apply the meaning of the printed page to the experiences he knows and feels as a young person? Some time needs to be spent in exploring our teacher aims and goals in reading instruction in terms of children's attitudes toward themselves and their reading. The question of what we test in standardized tests of reading achieve-

ment might also bear reexamination. What, where, when, and how much word analysis, word study, and book reading consumed a large portion of the evenings of study.

Informal classroom techniques were explored for evaluating the learner's reading performance in three dimensions of the reading act. The three dimensions of knowing what words are, knowing what words say, and knowing what words do to and for the reader can be examined through the materials of all levels of difficulty.

Summary

Our in-service programs with teachers were developed through curiosity about what is happening in reading instruction and a need for learning how to make reading a more personal rewarding experience for children in elementary schools. Programs topics were as follows:

1. Ways of developing and increasing a word recognition vocabulary.
2. Reading materials available on the interest and difficulty levels of children in our elementary schools.
3. Encouraging personal identification with story content.
4. Inquiry technique to encourage and reinforce the worthwhileness of unique personal learnings and responses to what is read.
5. Development of acceptable positive attitudes toward the reader and his reading.
6. Helping individuals evaluate the effectiveness of reading.

Promising Practices in In-Service Education in Reading

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Ohio State Department
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THE SCHOOLS of this cybernetic nobile age are characterized by an atmo-

sphere of flexibility, individuality, and independence. The student is provided with time and multimedia materials tempered with technological stimulation. The goal of instruction in this age must correspond to that of Socrates who led students to think and critically examine any statement proposed. He advocated that teaching should emphasize curiosity as a trait in learning which should be stimulated through inductive probing and broadened by intellectual inquiry.

This is an age in which teachers can no longer reflect the teaching strategies of Horace Mann or William McGuffey. It is an age in which students must be trained for change to meet the challenges of the late Sixties and the coming Seventies.

The teacher of the 1800's presented his lessons with the hickory stick, blackboard, chalk, and textbook. Projectors, recorders, television, and multiprinted materials are available to the teacher of the 1900's in addition to the standard tools. Some teachers implement these added manipulative devices with ease and enthusiasm, others with reserve and reluctance, and others not at all. The use of a device is not as important as the purpose for which it is intended. The understanding of the subject matter may be contingent upon a meaningful class presentation through the use of multimedia.

Never before in education has teaching been such a challenge. Teacher training must reflect the needs of our computerized society. Is this training the sole responsibility of the colleges at the preservice level or the school system at the in-service level? Experience has indicated that teacher training is a joint responsibility of both the college and the school system. The college sets the foundation and the school system builds upon that foundation.

The following narrative presents an overview of how in-service training programs have gained momentum in

Ohio. The narrative includes evidence of the impact of federal assistance, the state's role in providing guidance in planning continuous programs, and a description of a specific in-service training program for teachers of secondary reading.

The propelling impact of federal assistance

With the advent of government subsidy, school systems were forced into change and compelled to take a closer look at present practices and procedures, especially where reading is concerned. This was evidenced through Ohio's evaluative report of Title I, ESEA, 1966 fiscal year expenditures. Of the one billion dollars allocated nationally for federal programs, Ohio received over 34 million dollars. This represents 1,035 projects for the educationally disadvantaged student. Most of the projects were designed to improve language arts—based on reading skill improvement and development. Between January 1, 1966 and August 31, 1966 over 220,000 children from preschool through high school benefited by these projects.

In-service training played a significant role in these projects. The following information indicates the use of ESEA, Title I monies as part of the in-service training programs:

<i>Categories</i>	<i>Reported Data</i>
Projects in which in-service training was used to develop staff resources	617
Projects in which college or university consultants provided in-service training	267
Projects in which representatives or consultants from commercial suppliers provided in-service training	438
Projects in which funds were expended for in-service training	333
Estimated funds expended for in-service training	\$622,110
Persons receiving in-service training	13,816
Average number of hours each person spent in in-service training	17

(The cited information is from *Title I in Ohio: First Annual Evaluation on Title I: Fiscal Year 1966*, p. 40.)

Although these data are exclusive to Title I projects they do substantiate the trend in Ohio involving in-service programs.

NDEA, Title III, also played a vital role in in-service training programs. During the fiscal year 1966, when funds were available for workshops, approximately 70 reading workshops were conducted, serving 4,000 to 5,000 teachers and amounting to \$6,075 total expenditure.

The minimum standards for Ohio high schools and elementary schools support in-service programs involving total staff. Both sets of standards stress continuous and effectively organized programs, not only for the new teacher but also the experienced teacher.

This now brings us to the point where administrators and teacher planning groups are requesting assistance in organizing continuous in-service reading programs, utilizing the knowledge and talents of their own staff members. It is the responsibility of the school system to offer the encouragement, stimulation, and time to the teachers to plan and participate in reading workshops that are an outgrowth of their interest and concerns. The content of these in-service reading workshops could contain diagnostic procedures, prescriptive techniques, and identification of reading skills in the content area. A follow-up instrument should be designed to measure the effectiveness of the workshop as it is demonstrated by the instructional program in the classroom.

State leadership

In December of 1967 a reading council was formed. The objectives of the twelve-member team are as follows:

1. To contribute and share in concerns that affect Ohio youth.

2. To share concepts and ideas concerning reading improvement for Ohio's youth.
3. To coordinate efforts toward improving reading instruction in Ohio.
4. To improve communication between state, colleges, and school districts.
5. To establish a liaison-network of reading specialists throughout the state.

The members of the council were selected on the basis of their outstanding contributions to education in Ohio. Representation includes both elementary and secondary levels, as well as geographical locations.

The first activity of the council was to sponsor a secondary reading conference in the northeastern part of our state. The purpose of the conference was to bring together teachers and administrators who are directly involved in the initiation of and instruction in secondary reading programs. The content of the conference included the organization of a reading laboratory, the relationship of a reading center to the curriculum, and procedures for appropriate in-service training programs. There were 550 secondary instructors and administrators in attendance at this first secondary reading conference to be held in Ohio. The conference presented a general overview and explored the feasibility of implementing a reading program into high school schedules. From this initial step further scheduling of conferences and workshops have been planned to meet the needs expressed by the teachers and administrators who were in attendance.

To determine the content of these proposed conferences and workshops, the participants were asked to state areas of greatest concern. These needs were for the acquisition of skills in teaching reading, assistance in organizing and implementing a total reading program, and suggestions for planning appropriate in-service training.

It was also observed that certain

commonalities exist among the school systems represented at this conference. These are as follows:

1. There is a positive attitude toward implementing a secondary reading program.
2. There is an awareness to reading deficiencies of students.
3. The students lack proficiency in the basic skill of comprehension.
4. Space is available in most of the schools for a reading laboratory.
5. Provisions have been made for the reluctant reader but not for the remaining student population.

Action at the state level

To further assist the teachers and administrators in accomplishing the task of initiating a secondary reading program, a workshop was cosponsored by the Ohio State Department of Education, NDEA, Title III and Ohio State University, June 10-14, 1968. The purpose of the workshop was three-fold. First, to give the participants the framework in which to organize their own in-service reading programs, each participant submitted a proposal for an in-service program germane to their own school at the completion of the workshop. Second, the content of the workshop was incorporated into a booklet to be used as a guide for implementing secondary reading programs in Ohio. Third, other colleges and universities were encouraged to replicate the procedures and content.

Each group leader prepared and presented a paper on one facet of a secondary reading program. These topics included the following:

1. How to Teach Reading (points on "autoinstruction" for the secondary reading teacher).
2. Reading in the Content Area (skills characteristic to each subject area).
3. Diagnosing Reading Ability and Prescribing Appropriate Material (techniques for specialists and classroom teachers).
4. Effective In-service Education (how one school system organized and implemented a plan).
5. Motivating Students and Staff (the most important ingredient to insure success of the reading program).

A video program was produced to illustrate how the basic skills of vocabulary, comprehension, and silent and oral reading were introduced in the primary grades and reinforced at the intermediate and secondary levels. The purpose of this presentation was to impress on the participants that once skills are introduced there is continued need for reinforcement.

The participants had the opportunity to view and manipulate instruments and materials in a mobile reading laboratory. They also saw demonstrations showing the preparation of transparencies and videotapes, along with viewing the film "Teaching Reading in Secondary Schools."

Conclusion

Promising practices for in-service education in reading, state of Ohio, are as follows:

1. A positive attitude exists toward advocating secondary reading programs.
2. Reading staffs are attempting to implement change through continuous in-service training programs.
3. State and local personnel are combining efforts to upgrade, maintain, and implement secondary reading programs.
4. A model for an in-service program was established at the aforementioned summer workshop.
5. Teacher training is a continuous process. It is the cooperative responsibility of the college and the school system.

Expanding Practices in Secondary Reading In-Service Programs

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A. STERL ARTLEY PREDICTED at the International Reading Association Convention in Dallas, Texas, May 19, 1966, that when the history of reading instruction is written it will show that

one of the major points of emphasis of the 1960's will be the organized extension of developmental reading programs into the secondary grades.

As I observe secondary school programs and visit with colleagues, the insight of Dr. Artley appears to be accurate, for a vast number of schools have expanded a developmental reading program into the secondary grades.

During the early Sixties as the developmental reading program began to expand into the secondary school, the junior high schools proselyted teachers from the elementary schools. High schools then proselyted junior high teachers in order for a reading program to be established at the secondary level. This trend of proselyting is diminishing rapidly. Today individuals are being prepared at the university level to go into the profession of teaching at the secondary level as reading teachers. In the field classroom practitioners are expanding their ideas related to the teaching of reading instruction through in-service education. There is a definite expansion in the university curriculum to meet the needs of secondary programs. There was a definite change in school district programs and a definite change in the Office of Education to meet the program needs. The NDEA Institutes for Advanced Study in Reading have been helpful in retraining secondary personnel to meet the needs of secondary youth. The new EDPA will offer an expanded concept of in-service education at the secondary level. Under this new act, in-service education will be conducted with formal meetings at universities during the summer, and practical, grassroot meetings throughout the academic year in local school situations. Teachers may be reimbursed for Saturday meetings or substitutes may be hired for their replacement during the school day.

Permit me to share with you the di-
ion I am taking in this paper.

First, I see changes in the university structure of in-service. Second, some in-service education models I have seen impress me. Third, I have seen changes in school districts related to in-service education.

For the past twenty-five years in-service education has carried a connotation relating to on-the-job training in some aspects. Industry has done much of its educational training for specific skills on the job. The business world has stated in ads of recruitment for professional help, "send us a man who can read and we'll do the rest on the job." During the past fifteen years educators have been concerned with some type of on-the-job training for the teaching profession. Today at the university level there is an increased concern for training the "to be" teacher on the job, prior to being employed.

For the teaching profession, pre-in-service education is developing as a greater concept than the traditional "student teaching" portion of educational preparation. University professors are designing courses which permit the student who is preparing for the teaching profession to have meaningful experiences in the classroom. The structure of a beginning class in reading at the secondary level would give an example of the type of pre-in-service education existing today in colleges of education.

In a sixteen-week semester the first three weeks would be devoted to the theoretical aspect of teaching reading, Phase 1. Phase 2 would be a ten-week block of time with classroom observation, tutorial work, and seminar emphasis. Phase 3 would emphasize theoretics and problem solving.

In this beginning course for undergraduate students Phase 1 will aim specifically at the following:

1. The development of the teaching process of reading in the English language

2. The nature of reading
3. A developmental model
4. The improvement of word recognition skills
5. The improvement of comprehension skills
6. Teaching in a tutorial setting
7. Materials for reading instruction
8. The lesson plan

The environment of Phase 1 will be the academic setting of a university classroom designed for lecture and dialogue with the use of multiple media when appropriate.

During Phase 1 the instructor, in cooperation with a local school, identifies students in grades seven through nine to participate in the tutorial phase. The rationale for selection of grades seven through nine relates directly to the age of the inexperienced undergraduate teacher and the similar age of the high school junior or senior who has failed one or two grades along the way. The classroom practitioner is requested to select two or three students for her class that she feels would profit from a tutorial phase. The classroom teacher is requested to state what she thinks the student's problems are and what she would recommend for improvement. The university staff administers a pretest to identify a reading level and specific problems to be met during the tutorial phase. Upon the completion of pretesting of each junior high student, the university staff analyzes the teacher's suggestions and the test data collected before making recommendations in the form of an evaluative report. The evaluative report includes the following material:

1. Teacher appraisal
2. Test data collected by the university staff
3. Identification of area for specific teaching
4. Specific objectives to be met
5. Techniques to be attempted
6. Materials appropriate for techniques and objectives

This evaluative report is given to school administrator who forwards

it to the classroom practitioner and to the university student who will work with the individual child. Phase 1 is ended with an examination.

An orientation meeting with the university students and the local school personnel introduces Phase 2. Students then begin the observational program during the ten observational days (preferably each Monday). The university student is requested to complete observational reports related to classroom environment, pupils, description of the lessons, objectives, techniques and materials, and an evaluation of what was gained (if anything) from this visit. University students go directly to the classroom for observation upon entering the assigned building each Monday during Phase 2. Each university student observes in the classroom of his tutorial student. The classroom teachers are requested, during these ten observation days, to present what they consider their best in teaching junior high students to read. Observation reports are turned in to university staff each Wednesday for consideration in Friday's meeting.

The tutorial work is supervised by the university staff in the school cafeteria where the tutor (university student) brings the pupil (junior high student) for the lesson. The individual instruction closely follows the lesson plan prepared by the tutor. Each lesson is structured to the needs of the individual with every attempt to provide an atmosphere of continuous success. It is the responsibility of the university staff to supervise closely the lessons presented. Students having particular difficulty using a technique or material will find the university personnel available to demonstrate such a technique or material.

Upon completion of a 35 to 40 minute lesson the tutor escorts the pupil to his room. It is the responsibility of the tutor to evaluate immediately the lesson taught: what objec-

tives were met with success and those which were not, what characteristics were identified during the lesson related to the pupil; and the concept taught; the technique, and the material. The tutor also lists questions that arose from this experience.

The Friday meeting is of the nature of a seminar at the university level where the professor guides a dialogue related to Monday's observations and Wednesday's lessons. Suggestions concerning the observations and lessons to be taught the following week are made at this seminar. An incidental learning approach appears to develop during this Friday meeting; however, students are eager to find answers to their questions. A graduate assistant keeps a running log of the Friday meetings; this proves valuable when structuring Phase 3.

The remaining three weeks of the semester are spent in the academic setting of a classroom. The content of these three weeks is contingent upon the analysis of the Friday logs. Time is now available for an expansion of those areas not adequately discussed during the Friday seminars, and for those areas that were omitted from the seminars. During these weeks the students are required to write a short paper in a special interest area which developed during Phase 2 of the course. This interest area is generally an outgrowth of a problem which the student faced while teaching. The student is then required to demonstrate the ability of in-depth research concerning his interest area.

During this undergraduate, pre-in-service class a series of conferences are scheduled with the classroom practitioner at the junior high level. These conferences deal directly with the reading problems of the students within the classroom of the junior high teacher. It has been my personal observation that these cooperating teachers change their own preconceptions related to the

teaching of reading as a result of these conferences.

Several models of in-service education have recently been developed to meet the needs of local school districts of various sizes and geographical locations. At the Reading Research Center of New Mexico State University an interesting model has developed with notable features.

New Mexico State University, as a land grant institution has three basic goals in its original charter: teaching, research, and service. The Reading Research Center, a division of the Department of Elementary and Secondary Education, has accepted into the philosophy of its program the same three basic goals: teaching, research, and service. Each faculty member's work load is divided into at least two of these areas each semester. For example, one professor might have half-time teaching, half-time research. Another professor might have half-time teaching, half-time service. A third professor might have half-time teaching, one-fourth time research, and one-fourth time service. When a professor is assigned to service, his duties would include the fulfillment of a contractual agreement with a local school district.

The official contract is between a local school board and the University. The contractual agreement states specifically the type of in-service education the school district is to receive.

The in-service education program is different from much of the in-service education being conducted in the United States today because the local school district must determine its needs and state the objectives for an in-service program to the Reading Research Center. This forces the school district to think about their needs before the program. The University is not telling the local schools what they need, but is permitting the local school

to define its needs and state its problems.

The Reading Research Center's staff is pleased to work with school personnel in defining and stating objectives and establishing effective models in scheduling meetings to involve teachers. A school district with 25,000 students would necessarily use a different model for scheduling than a school district with 500 students.

Consider a district with 25,000 students involving junior high school teachers seeking in-service education where the seventh and eighth grades are housed with grades one through six. Immediately the problem of getting the teachers together for meetings arises. This problem can be solved by dividing the buildings into four sections geographically. Select one school to serve as a satellite (or meeting place) for its section: schools one through five will be satellite one, six through ten will be satellite two, eleven through fifteen will be satellite three, sixteen through twenty will be satellite four. Teachers from school buildings one through five would meet at the satellite one school for their sectional meetings. The rationale for selection of a satellite school would include geographic location, and facilities for handling an in-service educational meeting of both small groups and large groups.

Teachers attending a sectional meeting are limited to two teachers per school building per meeting. Five school buildings with two teachers per school building would give us ten teachers for in-service education. Teachers are selected initially on performance in classroom teaching, ability to identify problems in teaching, ability to receive instruction, and the ability to disseminate information to colleagues. A supervisor noted that one attempts to select the very best available when trying to cause improvement. Teachers who drag their feet in the

drag their feet during in-service education.

Two satellite sectional meetings are scheduled per day: one from 9:00 A.M. to 11:00 A.M. and another from 1:00 P.M. to 3:00 P.M. Substitute teachers are employed for the teachers participating in satellite sectional meetings. Substitute teachers work in the morning for the teachers from satellite one and transfer to replace teachers from satellite two in the afternoon. During the half-day released time, ten teachers assemble to work on a particular need or problem of their classrooms. At the conclusion of the two hour morning meeting, the teachers have an additional hour to crystallize their thinking concerning the accomplishments of their efforts before returning to their classrooms in the afternoon.

Satellite two teachers teach in the morning, but have substitute teachers in the afternoon. They will meet for two hours from 1:00 P.M. to 3:00 P.M. to focus attention on a particular need of their classrooms. Following the two hour meeting the teachers will have one hour to crystallize their thinking of their accomplishments before assembling for a mass meeting of all reading teachers from the schools in satellite one and satellite two. This is an after school meeting. Teachers receive no reimbursement for attendance and are excused from this meeting only when other professional duties conflict. This one hour long meeting is conducted by the consultant and the ten classroom teachers that have met in small groups during the day. The classroom teachers have the opportunity to state the problems discussed and make recommendations for implementation. Meetings are dismissed promptly at five o'clock to accommodate those who have responsibilities and commitments, yet frequently small groups linger. This process is repeated throughout the district. Occasionally all reading teachers of the

seventh and eighth grades are assembled when the program is appropriate.

A small community of 500 students or less with limited funds might only be able to afford two days of in-service education for their teachers. It is then suggested that the administration determine the most significant problem in their reading program to give direction for the content of the in-service program. The scheduling of the program might include blocks of time as follows: two hours, 10:00 A.M. to 12:00 A.M., for the elementary teachers; two hours, 1:00 P.M. to 3:00 P.M., for the secondary teachers; and an hour, 4:00 P.M. to 5:00 P.M., for the total staff.

In a small community, substitute teachers will often move from the elementary level in the morning to the secondary level in the afternoon. Administrators are always encouraged to attend in-service meetings but often find other obligations pressing. Effective programs should structure orientation meetings for principals and supervisors of representative schools within the district.

An interesting model has been developed by Birt Holland of the Las Cruces, New Mexico, Public Schools. After attending an NDEA Institute for Advanced Study in Reading, Mr. Holland returned to his school determined to improve reading instruction throughout his building. He soon met many obstacles with his after school in-service program. He found some teachers were tired, other teachers had baby-sitting problems, a number of his teachers could not be present because of bus-driving duties, band rehearsal, football practice, and other equally important reasons.

Determined to establish an in-service program, he began to analyze his own school program to determine how and when he could organize or arrange his staff for such a program. Mr. Holland noted the only possible time hers could get together was during

the clock hours of the teaching day. Every teacher has one scheduled free period per day for preparation. Mr. Holland then decided to meet with small groups of teachers (approximately five) during one of their preparation periods. This offered a 50 minute in-service education meeting during the teacher's normal workday with 100 percent attendance of the total staff. For this to fit within the framework of an assistant principal's workload he scheduled only two such meetings per week and continued to conduct the in-service throughout the teaching year. These meetings followed several basic principles:

1. Teacher needs explored.
2. Small group interaction.
3. Total staff participation.
4. Specific goals to be reached with flexibility.

In all probability, if you were to summarize all the models to which we have alluded, you would find no established model to fit your particular situation, but an adaptation of these and other currently existing models to the specific needs and objectives of your school district will produce effective results with an in-service program.

As I visit and participate in secondary in service programs, I note several developing trends at this time:

1. The secondary school is beginning to profit from the mistakes made in the early elementary education in-service program. Research into the large body of knowledge reveals that the secondary program is now advancing as rapidly as the elementary program. By this I do not mean all secondary teachers are as eager as elementary teachers to participate in an in-service program; however, I do mean to imply that secondary teachers participate in programs of equal sophistication with elementary programs.

2. There is a moving trend for the local school district, rather than the university, to establish the goals of the

in-service program. In past years the university staff members would design and conduct what they thought was an adequate in-service program. Today the local school district is assessing its own personal needs and telling the university staff members what type of a program they want.

3. There is a trend toward establishing a team effort program rather than a single individual program. A greater number of staff members work in their areas of specialization. In the past, one individual offered a series of lectures, workshops, or seminars for an in-service program. Today a team of specialists conduct a more sophisticated program based on the predetermined needs of the particular district.

4. One-day in-service programs appear to be giving way to the continuous in-service program. I recall going to a school district for a two hour presentation entitled, "The Annual Day for Improvement of Instruction." Local school people at the grassroots level realized the need for continuous improvement in instruction. Thus they have now established programs that involve teachers for as much as two days per month.

5. The developing trend is away from the teacher's in-service program toward a total staff in-service program, designed to include supervisors, principals, and assistant principals. In-service for reading teacher aides is developing at this time.

6. Regionally and nationally produced in-service programs are being developed to replace locally produced in-service programs. Specialists to help develop the programs are being employed from universities from far and near.

7. With the finest organizational structure that one can design, an in-service education program will completely collapse unless adequate content is placed within the structure of a model. We are experiencing a

current trend concerning content which moves from the teaching of reading techniques to an expanded position which includes the total learning process of the reader.

Whether or not the developing trends described above will have lasting merit can only be known from trying and testing them for value and worth.

Promising Practices in In-Service Education—Teachers of Adults

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TODAY there is an increased awareness of the plight in which some members of our society find themselves because they are unable to read and write. This problem is not a new one. Through the years people such as Mary C. Wallace, Angelica Cass, and Frank Laubach have worked diligently to help people overcome the handicaps imposed upon them by their inability to read and write. Programs similar to those in Denver, Colorado, and Flint, Michigan, have been in operation for many years; but the few efforts that have been made were not sufficient. With the rapid expansion of knowledge and technology the problem has become more pronounced. National concern is evidenced by the legislation passed by the Congress of the United States.

It was reasonable to assume that when efforts were made to help adults overcome their handicaps, there would be a great surge of interest on the part of those needing help. This was not the result obtained, though; and while some programs were successful, others were beset with problems from the beginning. People could not be recruited to attend the classes in some

instances, or could not be retained. A part of the problem appears to have been that not much was really known about the adult illiterate. Of course, there was information about how many did not finish the fifth grade or had less than an eighth grade education. It was thought that most functionally illiterate adults were in the lower socioeconomic strata and that many were unemployed. Beyond general information such as this, not much was known.

The lack of knowledge about the adult illiterate was only part of the problem. Another aspect was the lack of adequately trained teachers. (See data gathered during the research phase of the Missouri Adult Vocational-Literacy Materials Development Project.) Basically the purpose of the project was to develop vocational and life oriented reading materials for adults, using i.t.a. as a medium. Teachers of undereducated adults and adults in basic education programs were interviewed and a mailed questionnaire survey was conducted in an effort to develop worthwhile materials.

Parts of the teacher interviews and the mailed questionnaire are germane to this discussion. Thirty-five teachers were interviewed from programs conducted in Detroit, Chicago, Kansas City, St. Louis and at the Missouri Department of Corrections. Most of the teachers interviewed had previous teaching experience of some kind. About half had previous experience in the teaching of reading in elementary and secondary schools, and about half had previous experience in adult reading programs. Five of the thirty-five teachers had had no previous teaching experience of any kind (2). In addition to the interviews, 500 questionnaires were mailed to teachers in 110 programs throughout the United States and returns were received from 200 teachers. The returns indicated 83 percent of the teachers had had

elementary school teaching experience. However, approximately 73 percent of those with elementary teaching experience had not had previous experience in teaching adults (2).

Although some efforts have been made in the last year or two to upgrade the level of teacher competency, we may still assume that many teachers in adult reading programs are still inadequately prepared. A teacher's manual is not enough to prepare a teacher adequately.

The following will illustrate the importance of adequate training. The materials developed by our project were evaluated in a field testing involving three classes of adults. One class achieved significant gains in approximately 25 hours of instructional time, and a second class achieved significant gains in approximately 75 hours of instructional time. The third class, however, did not achieve significant gains. Since there were no tested differences among the classes at the beginning and the same materials were used by all, it appears reasonable to assume that the only difference among the classes was the teacher variable. The teacher whose class did not increase significantly was the only one of the three who had had no preparation in the teaching of reading. He could not bring any additional knowledge, techniques, or experience to the teaching situation and had to rely upon the teacher's manual completely. While this is a rather small sample from which to generalize, the experience did bring home to the writer the importance of knowing how to teach reading.

The question of whose responsibility it is to prepare reading teachers for undereducated adults is one which must still be decided, and until this question is resolved, other efforts must be made. Early efforts were made to train "teachers of teachers of adults" as a quick method to get programs

started. During the summer of 1967, a few institutes were held throughout the country to train teachers of adults, but these efforts were limited in scope. To reach large numbers, a concentrated effort on the local level must be made without waiting for federally sponsored programs. Zintz (8) has suggested that "short-time workshops, as well as semester evening courses, must be utilized." But, are short-time workshops enough? I would suggest that the training should be divided into two parts: preservice and in-service training.

Preservice training should be given to all teachers new to the program, regardless of their previous experience in teaching children to read. Since most programs traditionally begin in the fall, the training sessions should be held during the summer. The length of the summer session will vary, of course, according to the time, space, personnel, and resources available, but when possible the preservice training should be a full-time program of six to eight hours each day to allow for continuity.

Proposed curriculum

The curriculum of the preservice training might emphasize 1) how adults learn, 2) psychological and sociological factors involved in adult basic education, 3) instruction in the teaching of reading, 4) reading programs available for use, 5) instruction in the use of audiovisual equipment, and 6) diagnosis of reading disabilities. There may be additional, or different, areas which each locality might choose to include in their program, for the curriculum proposed appears to be rather basic.

Even though the pre-service training period may last for most of the summer, all the problems involved in teaching adults to read cannot be covered; and it is quite obvious that the curriculum proposed above cannot be

fully covered in a two or three day workshop. If only a short preservice workshop is possible, the in-service training might be an extension of the areas covered during the summer workshop. If possible, the in-service program should meet weekly for two to three hours; but if this is not feasible, one or two day workshops could be held each month.

As far as the first area of the proposed curriculum—how adults learn—is concerned, not much has been done since the work of Thorndike (6). There is especially a lack of knowledge with regard to undereducated adults, but some general knowledge about adult learning can be gained by studying Thorndike (6) and Kidd (3). As additional information becomes available through research, the findings could be reported and discussed during the in-service sessions. Assigned readings combined with lectures and discussions conducted by personnel knowledgeable in this area could provide an understanding needed to teach adults how to read.

The second area—psychological and sociological factors—also may be mostly academic by nature. A book by Lanning and Many (4), which contains the contributions of a number of people who are aware of the problems faced by undereducated adults, should prove helpful. In addition to just reading about and discussing the psychological and sociological problems, a variety of approaches might be used: 1) field trips to areas with a high rate of illiteracy, 2) discussion groups conducted by teachers with experience working with undereducated adults, 3) talks given by people who have successfully completed a reading program (with emphasis on problems they faced), and 4) discussions by resource people who have studied these problems in depth. Additional books which might be helpful in the same academic phases of the in-service pro-

gram are those written by Wallace (7), Cass (1), and Otto and Ford (5).

The method employed to teach adults to read should be selected with adults in mind, not children. While the techniques with adults may be the same as those used with children, one should not approach the teaching situation in the same manner as one does with children. The undereducated adult is not a person with the body of an adult and the mind of a child. He has functioned in our society for a long time and in some instances has functioned quite well. All teachers who have not worked with adults should be given training, regardless of their experience in teaching children to read.

In the last two or three years, a number of reading programs oriented toward the adult have appeared on the market. Teachers should become familiar with all programs before selecting the one to be used. Administrative difficulties must be considered; however, best results are obtained when teachers select the materials with which they feel most comfortable. During the in-service workshops, teachers using similar materials could share experiences and give demonstrations of different ways of using the reading programs. As newer reading programs appear on the market, the programs could be inspected and comparisons made during workshops. It is important to keep teachers informed about the latest development in reading programs so that improved programs can be adopted to facilitate the teaching of adults.

Training in the use of audiovisual equipment will be limited by the availability of such equipment; but as new equipment comes on the market, it could be demonstrated during an in-service meeting. The nature of the instructional approach used might lend itself better to one type of equipment than to another. Consideration should

be given to the use of equipment which can be operated by students in self-instruction, since there will be many levels of ability in a class, even though some type of grouping is used.

Let me give one illustration about how teaching can be facilitated through the use of equipment. While visiting adult reading classes for our project, we observed the use of a teacher-prepared tape for auditory discrimination. The tape recorder was equipped with five or six sets of ear-phones, and the students listened to the tape while following the words on a word list. Since the students could operate the tape recorder, the teacher had time to work individually with other students in an oral reading session. If equipment is available, a little effort and planning ahead can facilitate the teaching of reading.

Diagnosing reading disability problems is difficult in a clinical setting, but it is even more difficult in a classroom. Many undereducated adults will have physical and emotional handicaps which block their learning to read; and if a teacher is not aware of these problems, considerable time and effort may be expended with little progress achieved. Teachers need to be taught how to recognize behavior which might indicate poor eyesight, poor hearing, poor speech patterns, or emotional stress. Some training in the correction of the more common handicaps might be included in addition to being able to recognize the handicaps. Sometimes, though, it is best that teachers do not try to correct reading disabilities; therefore, they should know when to refer students and what procedures should be followed.

Most of what has been mentioned so far is what might logically be an extension of the preservice program. Other topics to be included in the in-service workshops might arise from the more immediate needs of the teachers. Teachers could be consulted ahead of

time about knotty problems they would like to have discussed or about which they would like more information. Techniques and ideas used by different teachers could be shared through demonstrations in an effort to disseminate information about promising practices on a local level. Teachers and resource people from other programs could be invited to describe what is being done in their programs in an effort to share ideas on a county or statewide basis. The topics that might be covered in an in-service program are almost endless and tend to be self-generating. As more is learned in the course of the workshops, more questions should arise.

The problem of preservice and in-service training has been discussed in rather general terms, but the central purpose of the workshops should be to provide teachers with more approaches to solving problems that arise in their classes through a better understanding of the undereducated adult. Each locality will have to determine what specifically will be included and as we learn more about how adult illiterates learn, more depth can be added to the training programs. Considerable contributions can be made by teachers as well as by professional researchers. Once we have decided that adult basic education is everyone's problem, much faster progress can be made.

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Reading Guidance: In-Service Procedures and Techniques

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THROUGH READING RESEARCH STUDIES and a variety of communication media, teachers today have become increasingly aware of and involved in three broad aspects of a good reading program: the *developmental* aspect in which we teach children to read on successive maturity levels; the *curriculum* aspect in which reading is used as a tool in the development of content subjects, and in turn, must be developed as a special skill and tool; and the *enrichment* aspect, a means of self-fulfillment, in which lives are broadened and deepened through the reading experience.

Enrichment through reading guidance

Today, reading guidance emerges as an area of importance in the modern curriculum. Recently, many discussions have centered around such topics as identity, identity crisis, self-fulfillment, commitment, involvement, and personal worth. Today's youth is searching every avenue as a means of finding himself—of reaching self-fulfillment. The enrichment aspect in the reading curriculum can make a definite contribution to the personal and social growth and development of our children and youth. It can be a means of

self-fulfillment and lives can be broadened and deepened through the reading experience. I would like to present a few guidelines and techniques which would be useful to teachers in planning, organizing, and executing a reading guidance program.

Reading guidance is the directing or guiding of pupils in the selection, the enjoyment, and the study of books which should implement and enrich curricular experiences and contribute to the developmental needs and interests of pupils with regard for their home and community backgrounds (6).

An adequate and broadened enrichment program in reading will be more effective as teachers gain more knowledge of the individual—his plans, problems, and aspirations—for he is the center of focus in reading guidance. Once the plans, problems, and aspirations of the individual are known, then materials can be selected to meet his needs.

In-service

Perhaps one of the best ways to help teachers who are interested in reading guidance, procedures, and techniques, is through in-service training. Such an in-service program can be realized through workshops or institutes. If the entire faculty of a school is interested in a reading guidance program, the group may want to proceed in a step-by-step plan. The following may serve as a guide:

Development and evaluation

Step 1. Establish a steering committee who will prepare and conduct a survey. Someone, usually a reading consultant, should assume leadership in initiating the project and in identifying and enlisting the most strategic persons from the following categories: *educators* (principals, curriculum specialists, school board members, classroom teachers, psychologists, school or

public librarians); *civic groups* (PTA members and discussion leaders of book clubs, such as the Junior Great Books Program); and *other agencies* (consultants from publishers and leaders of special groups, such as the culturally disadvantaged).

Step 2. The steering committee should survey the present status of the school's reading guidance program, classroom by classroom. Knowledge of the present reading guidance program in the school is the basic to planning for improvement. In some cases, basic data are available for analysis; in others, such data must be collected and analyzed through a specific approach, such as the survey. The study should cover all major areas of reading guidance: 1) the teacher, 2) guidance services, 3) materials, 4) techniques for evaluating personal-social growth of pupils, 5) methods or approaches of reading guidance, 6) reading activities and experiences, and 7) devices for promoting reading. Once the survey has been conducted, the results should be presented to newly-formed subcommittees for step three.

Step 3. Subcommittees compare and analyze the survey results with relation to established principles of reading guidance (3).

Step 4. Proceed to identify strengths and deficiencies of the reading guidance program. Determine the areas in which the school's reading guidance program is strong and those areas in which it needs to be improved. Identify individual student strengths, needs, problems, and areas of reading interests.

Step 5. Set goals or objectives. Establish the goals which one hopes to achieve by the end of the year, a three-year period, or a five-year period.

Step 6. Select priorities. Identify improvements which can be made at once and areas in which the greatest effort will be needed. Choose steps

which will lead to the goals desired. Since many areas of the program are interdependent, improvement in one area may call for improvement in other areas.

Step 7. Divide work into feasible steps. Outline the work to be done in terms of personnel (classroom teachers, librarians, psychologists) and what is to be done for each year.

Step 8. Initiate action. Putting the reading guidance plan into effect means *action*. It also means reporting the results of that action. Well-planned workshops, organized and conducted by a reading consultant, can be one method for this action to take shape.

Step 9. Report plans and action. All participating groups should be kept informed. This can also be done by the reading consultant or some other person who has assumed the leadership role. Make progress reports at regular intervals during each year. Prepare a comprehensive final report.

Step 10. Evaluate the progress annually. Assess the progress made toward the established objectives, identifying mistakes as well as successes. Use these findings to revise plans and goals as needed.

Planning and working cooperatively is necessary in promoting reading guidance. The establishment and execution of a reading guidance program, to be successful, must involve the entire staff.

The principal or superintendent leads the way; if he doesn't, the reading consultant should assume this leadership. The librarian provides the environment and resources; the teacher determines effectiveness and availability of materials and services, other staff personnel, such as the psychologist and speech therapist, contribute from their background of knowledge and experience.

The person who accepts the responsibility for directing the program must

be able to work with groups and individuals, must have a good background in the psychology of children, youth, and adults; must have a thorough knowledge of the process of reading, methods, books, and reading materials as well as exhibit an adeptness in locating and using resources; must have an "almost innate" ability for organization and a love for and understanding of people. The entire staff must show deep interest and enthusiasm as they initiate, develop, and finally evaluate a program which attempts to promote personal and social growth through reading.

Action workshops

Well-planned workshops would help initiate action among teachers. Presented below are outlines for two workshops intended to help teachers who are engaged in the development, progression, and evaluation of a reading guidance program.

Workshop 1. Program for in-service training in techniques useful for personal-social evaluation

IDENTIFICATION OF TECHNIQUES USEFUL FOR PERSONAL-SOCIAL EVALUATION

Observational techniques
 Informal self-evaluation techniques
 Projective techniques
 Sociometric techniques
 Eclectic techniques

CONSTRUCTION OF SOME PERSONAL-SOCIAL EVALUATION TECHNIQUES

Select techniques to be constructed
 Divide into groups for construction of techniques
 Actual construction of techniques by various groups

DISCUSSION CONCERNING THE ADMINISTRATION OF SELECT TECHNIQUES

Lecture by the Reading Consultant
 Groups in Discussion
 Planning for effectiveness in administration
 Planning for efficiency in administration

DISCUSSION CONCERNING ANALYSIS AND INTERPRETATION OF COLLECTED DATA

Group discussion
 Individual conferences
 Outside help from other personnel, as the psychologist

IDENTIFICATION OF PUPILS' PERSONAL-SOCIAL NEEDS, PROBLEMS, AND INTERESTS FROM THE RESULTS OF TECHNIQUES USED

DISCUSSION OF ADVANTAGES AND LIMITATIONS OF TECHNIQUES USED.

Panel Discussion

In the first session of this workshop, teachers would be introduced to the various techniques which have been found useful for identifying the personal-social needs of pupils. Among the observational techniques are the anecdotal record, check list, and rating scale. The informal self-expression techniques include autobiography, diaries, questionnaire, interview, and role playing. Projective techniques for the classroom teacher's use are limited. Two which could be used are the creative story and the sentence completion technique. The sociogram is useful and the case study of an individual is very valuable. The cumulative record of each student can also be revealing.

After the teachers have been introduced to the various techniques in the first session of the first workshop, the group may now divide into small groups, each group constructing, administering, and interpreting-analyzing the results from the techniques applied. A summary can then be made, noting the needs, problems, and interests of the students to whom these techniques were administered.

In the final session of the first workshop, advantages and limitations of the techniques used could be pointed out through a panel discussion thus serving as a guide in selecting adequate techniques for future evaluations (1).

When the students' needs, interests, and problems have been identified, teachers will want to use various ways and means to meet these needs. At this point teachers could begin a second workshop, of which the following serves as an outline.

Workshop 2. Program for in-service training in ways and means of promoting personal and social growth through reading

WAYS AND MEANS OF FINDING AND KNOWING READING LEVELS OF PUPILS

Standardized reading tests
Informal reading inventory
Individual student profile
CONSTRUCTION OF BOOK LISTS TO MEET SPECIFIC NEEDS
BIBLIOTHERAPY—ONE ASPECT OF READING GUIDANCE
STIMULATION AND PROMOTION OF INTEREST IN READING THROUGH PROMOTIONAL DEVICES

Ways and means of finding and knowing reading levels of students

In the first session of this second workshop, a reading consultant can help teachers to be better informed about their pupils' reading levels. This can be done by having the teachers bring their own class lists with the reading achievement test results and estimate frustration, instruction, and leisure reading levels of their pupils. It is generally agreed that the score on a reading achievement test is the frustration level. To find instructional level, subtract one year; to find leisure reading level, subtract another year.

In making such an analysis of each pupil within a classroom, the reading consultant can help teachers to use test results more effectively and can help teachers to use the leisure reading levels of their pupils as a satisfactory level for reading guidance, particularly as children take books from the library.

Besides using standardized test scores for estimating the three reading levels, the reading consultant could instruct teachers to make use of the informal reading inventory. An excellent pamphlet, *Informal Reading Inventories* by Marjorie Johnson and Roy Kress (an International Reading Association Service Bulletin, 1965), would be a valuable guide.

Making a profile of each student's reading ability would also be useful. On such a profile one would record the scores of the standardized reading test results; the three levels of reading; a list of the student's reading interests; a graph of present grade level; student's

test score results, and his reading expectancy level. One could see at a glance if a student is reading at grade level and at reading expectancy level. From the construction of such a profile for each student, teachers would have readily available information for providing reading guidance for each individual.

Construction of book lists to meet specific needs

In order to construct useful book lists, teachers need to know children's books. New books can be made available at a workshop by means of book exhibits from various publishers, book fairs, and through book clubs by reading and evaluating some of the latest books and reviews of children's books. Teachers can be helped in the workshop to find readability levels of books (7); to list books according to appeals, interests, and developmental values (2); and to construct various other types of lists to serve special purposes. Examples of types of lists which could be useful are books for the beginning reader; books which have therapeutic value for children; books for the reluctant reader at a certain grade level; and books centered around a particular theme, need, or content-subject topic.

In constructing lists during a workshop, a group of teachers may want to divide into groups, each constructing a different kind of list or they may want to work as one group constructing a sizeable reading list related to one topic, theme, or need.

Bibliotherapy—one aspect of reading guidance

Reading guidance includes the application of bibliotherapy. This reading guidance technique is based on the assumption that by reading specific books, the child will identify himself with the book character who faces a problem or a situation similar to his

own. It is hoped that by this identification the child's attitudes, behavior, and personal and social growth patterns will be influenced so that he may adjust to his own situation or know how to cope with his own problem or need.

In a workshop session many teachers need to be introduced to the concept itself. They also may need to know what research says about bibliotherapy—the present theory and application of bibliotherapy, its limitations and possible advantages, and implications for the future in the field, particularly for the elementary classroom.

Once teachers have this background information about bibliotherapy, the reading consultant, through the in-service workshop, should encourage teachers to try the technique. Some teachers may want to work with an individual pupil; others may want to make their first attempt in a group situation. From the results of the personal-social evaluation techniques, the teachers should have identified the general needs, as well as the particular needs of the pupils in their classroom. Teachers could select one of the most urgent needs which have been identified and make selections of reading materials relevant to that need. Now a teacher should be guided in making a lesson plan centered on a theme or need as indicated.

Sample of a lesson plan— bibliotherapy (5)

1. Description of class need: intercultural understanding—Negroes
2. Statement of objectives or purposes:
 - to develop sensitivity to other human beings, particularly the Negro—sensitivity to his needs, aspirations, abilities
 - to stimulate interest in reading about the Negro
 - to develop skill in critical reading
3. Story Title: *Jazz Country*, by Nat Hentoff (4).
4. What parts or situations of the story

are particularly appropriate? (for use with this class):

- Tom Curtis' attempt to join the Negro jazz band
 - the people whose influence helped shape Tom's life
 - why Tom Curtis made the decision to go to college
5. Will you use the complete story or only parts? *complete story*
 6. Class period during which you will use the story: *reading period*
 7. Use of story planned for: *total group*
 8. Plans for presenting the story.
 - give background of author
 - introduce the book
 - read the book to the class—daily, part by part
 - have students note particular happenings which they would like to discuss at the end of the reading
 9. Related activities planned: Class discussion; outside reading of other books related to the theme; if time permits, a panel discussion to serve as part of evaluation.
 10. Specific questions to help pupils relate reading to personal situation:
 - In what ways did the Negro jazzmen influence Tom Curtis?
 - What was the predominant positive trait of the Negro jazzmen as a group? Discuss.
 - If you were Tom Curtis, what would you have done when Tom was rejected as a member of the band?
 - How will a college education—such as Tom Curtis chose—help to build better cultural and racial understanding?
 - What other things might Tom Curtis have done? Discuss what you would probably have done.

Evaluation: Questions, comments, or reactions made by the group or individuals regarding this story. Note especially how the pupils reconstruct the story. Have pupils give suggestions for changes in planning or approach for further use of this book.

A reading consultant should help a teacher by observing as she carries out the bibliotherapeutic lesson plan and by holding a conference to help her make evaluations.

Stimulation and promotion of interest in reading through promotional devices

In the last session of the workshop numerous and varied promotional devices for extending interest in reading

can be made, demonstrated, and exhibited. Such a construction workshop could include the following:

1. Guiding teachers to create exciting posters to advertise books.
2. Helping teachers, particularly the primary teachers, to construct a miniature stage—setting parts of stories which are read to the children.
3. Helping teachers to construct puppets of book characters.
4. Guiding teachers in storytelling techniques.
5. Demonstrating the use of films, filmstrips, and records as a means of promoting interest in reading.
6. Organizing and conducting a book club and book fair—making posters or gathering ideas for posters or bulletin board arrangements.
7. Constructing various types of reading records.
8. Discussing the possibilities of, and assembling characters from, different books to be used in the construction of mobiles.

These are some of the ways in which a reading consultant can help to provide in-service training in the area of reading guidance to teachers and others in the community in order that they may lead children and youth to personal and social growth.

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In-Service Education for Remedial and Corrective Teachers

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IN-SERVICE EDUCATION is one of the means made available to a school district to upgrade the competency of their personnel. The concept of in-service education is often interpreted in the very narrow sense of a planned series of lectures; but in-service should include a very broad range of activities. Such activities may be sponsored by many agencies both within the school district and without.

In a recent research bulletin published by the National Education Association on "In-service Education of Teachers" it was stated, "One mark of a profession is that its practitioners shall have a high level of preparation according to standards set by the profession itself" (1). IRA has long recognized the need for both preservice and in-service training. Unfortunately most of that discussion has been geared for the classroom teacher. Today there is a great need for in-service training for all educators, at all levels of proficiency.

In the United States today, approximately half the states certify reading teachers. Most of these states require that certified reading teachers meet the Minimum Standards For Professional Training of Reading Specialists as outlined by IRA. Others require more, a few require less. In the other twenty-seven states, any individual deemed knowledgeable about reading may be hired to fill a reading position. In-service education for the latter group is a must and would certainly be of value to both. Due to the small number of remedial and corrective teachers within a system, school districts

have given little thought to the in-service training of these people. Remedial and corrective teachers have often had to plan their own in-service training, if they wished to keep abreast of new developments and techniques within the field. Some districts have even expressed the idea that since the reading teacher is an "expert," there is no need for them to get involved in in-service activities.

In order to discuss promising practices in the in-service education of remedial and corrective teachers, we must first define the role of the remedial and corrective teacher. The Professional Standards and Ethics Committee of IRA has defined the role as follows:

1. Identifying students needing diagnosis and/or remediation
2. Planning a program of remediation from data gathered through diagnosis
3. Implementing such a program of remediation
4. Evaluating the progress of students in a remedial program
5. Interpreting the needs and progress of students in the remedial program to the classroom teacher and parents
6. Planning and implementing a developmental and advanced reading program when necessary

There are numerous ways by which remedial and corrective teachers, using a broader connotation of in-service, might improve their own skills and abilities and thus, provide better service to their district. Each area of in-service discussed below will include practices already instituted in some schools, while other areas discussed will include practice which need to be considered.

Study groups conducted by local IRA Councils. Various councils of the International Reading Association have often recognized the need for providing in-service training for reading teachers, particularly in those geographical areas where each district hires only one or two individuals. In such instances, arrangements are made

with each school district to permit the reading specialist to participate in a county-wide or council area-wide course, recognized by the district, and for which credit for advancement is given by the teacher's district. Lecturers from nearby colleges and universities are often used, as well as reading consultants who can make outstanding contributions. Specialists from allied fields, who can contribute to the understanding of children's needs, or discuss factors which may cause reading failures, are often invited to participate. In some areas, these study groups may be conducted by others, such as county-wide curriculum committees or study groups under the auspices of supervisory or superintendent's organizations. Regardless of the organization, study groups do provide an opportunity to bring together a number of people from a wide area to share in an in-service training program.

The monthly, quarterly, or annual meetings planned by many of the councils also provide excellent opportunities for reading teachers to hear noted speakers, exchange ideas, examine new materials, discuss research, preview new films, etc. Many councils adopt a theme for the year around which their meetings are planned. Council meetings provide good opportunity for reading teachers to hear and to be heard on what's happening in reading.

School visitations and discussion. Visitation by the reading teacher to other districts to observe good methods and techniques can be of tremendous help in expanding and improving their knowledge. In order for a visitation to have value, it should be followed by a discussion of the techniques observed; how, when, and why they were instituted; and an evaluation by the district using them. In some instances, the experimental techniques used are not always applicable to another district. While visitations can

be helpful, it is necessary to remember that all conditions observed must be taken into consideration before changes are made within an existing program. Too often, what looks good in a neighboring district does not work at home.

Attendance at County, State, or National Conferences. Every year there are numerous reading conferences organized and sponsored by various organizations at the local, state, and national levels. In fact at the present time there are so many conferences that reading teachers need to choose carefully those meetings which best fit their needs. It must be remembered that one of the most important aspects in attending conferences is the participation of the people involved. It is here that individuals exchange ideas and techniques, materials and methods they employ, and often expand their insights and knowledge. Many districts ask teachers who have attended conferences to share their ideas and thoughts with others in the district. This, too, can be a valuable experience, if well planned and well thought out.

Attendance at NDEA Institutes. During the past few years, a number of NDEA Institutes have been offered in reading. While many of these have been designed for teachers who possess little or no background in reading, some have been organized for the experienced remedial or corrective teacher. Institutes provide intensive work usually within a college setting. They offer practical application and follow up, so that the work done the next year in the school district has application to that learned during the summer. Attendance at NDEA Institutes is limited to a very small number of participants and lucky is the individual who is chosen to attend!

Case Conferences. Case conferences offer an excellent opportunity for the reading teacher, classroom teacher, psychologist, administrator, and others

to discuss one student in particular. The knowledge gained from pooling information from many sources, from reacting to suggestions, and from the effort made to follow through often proves one of the most stimulating and exciting in-service experiences. Ruth Strang discusses these conferences in the 1965 IRA Proceedings, *Reading and Inquiry* (2).

Staff Meetings. A reading staff comprised of two or more individuals has the opportunity of using staff meeting time as in-service education. While staff meetings usually involve discussion of routine matters, a number of meetings each year should be set aside to explain new materials, discuss new ideas, investigate new research material or research studies, and report on techniques being used. A well knit staff has a unique opportunity to learn from each other and to grow. The coordinator or supervisor might well use this opportunity to suggest areas that staff members might investigate or explore.

Curriculum Work. Working with the classroom teacher to improve the overall teaching of reading, while not a major function of the remedial and corrective teacher, is one that the reading teacher is often asked to assume. Working with teachers on curriculum development provides opportunity for the reading teacher and the teacher to more fully understand each other's role. They can discuss such common problems as identifying the slow reader, diagnostic procedures, use of diagnostic information, finding and using correct level material, evaluation of the program, etc.

Formal classes or courses. Remedial and corrective teachers should be encouraged to take evening, Saturday, or summer college courses from time to time. There are many aspects of reading, as well as related areas, for which there has not been time during graduate program. Certainly with

the need of reading teachers to become more aware of many aspects of child development, literature, content fields, psychology, etc., the offerings for growth are unlimited.

Research. With many new reading programs, methods, and approaches being made available today, the remedial and corrective teacher will find valuable in-service experience by carrying out action research within a district. Research projects provide opportunity for reading other research studies done in the same area, for designing a project to be conducted within their own classes or in cooperation with the classroom teacher, and for evaluating the project. Often when contemplating a research project, it is helpful if provision can be made for the design and results to be checked with an individual from a neighboring college or university.

Professional Association Work. Reading teachers who work with local reading councils, state councils, or are fortunate enough to be asked to serve on committees of IRA, often find these rewarding and enjoyable experiences. All reading teachers should consider it a major function of their responsibility to participate whenever given the opportunity, and to offer their support to professional associations.

Work Experiences. Working in similar and related areas outside the school district provides reading teachers with insights into their work. It is suggested that inexperienced people look for their first work experience under the direction of a well qualified reading director or supervisor who can provide them with the help that is needed. Private tutoring, while being a very lucrative outside activity, should not be undertaken by the teacher lacking experience in working with many types of reading problems. Work experience that provides opportunity to work with children not usually seen in the school setting often of-

fers the best type of in-service training.

Commercial Workshops and Institutes. Many commercial companies today are providing workshops or institutes ranging in length from one day to a week. These institutes and workshops are usually a way of helping teachers become acquainted with the material developed by the company; but they also provide information and learnings which apply to the general field of reading. When considering a commercial workshop or institute, it is wise to weigh the program offered, the amount of time being spent on the material, the type of material the company produces, and the workshop leaders.

Summary

It is easy to see that the remedial and corrective teacher has many opportunities to grow through in-service education. In order to participate actively or to be an influence on the classroom teacher, the reading teacher must keep abreast of the literature through reading current professional texts and the reading journals, examine new materials for students, and evaluate curriculum and test materials. In some instances, the remedial and corrective teacher must instigate programs for his own in-service education. The opportunity for in-service education is unlimited, if given thought and energy.

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New Trends in In-Service Practices for Remedial and Corrective Reading Teachers

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IN THE PAST few years the federal and state funded reading programs all but demanded instant reading specialists as an implied requirement for the acceptance of a proposed program. Out of desperation or urgency school districts all over the land hurriedly complied by filling specialist positions with, if fortunate, outstanding classroom teachers. The task of turning even excellent teachers into specialists in a brief period has been a challenge for many a supervisor or consultant to meet.

Inquiries as to what has been provided in in-service training of teachers who have become remedial corrective reading specialists were made in a questionnaire distributed in January 1968 to a random sampling of school districts in five groups of varying pupil populations.

The number of questionnaires sent and returned are shown below:

	Total Pupil Enrollment in School District	Number of Questionnaires Sent to Random Sampling of Districts	Number of Questionnaires Returned	Percent of Returns
Group 1	100,000 or more	22	18	82%
Group 2	50,000-99,999	20	13	65%
Group 3	25,000-49,999	20	10	50%
Group 4	12,000-24,999	50	26	52%
Group 5	6,000-11,999	50	26	52%
Total		162	93	59%-60%

The ninety-three responses accord a fair estimate of the current remedial-corrective reading situation and in-service practices. All data reported in this article are derived from and do not extend beyond responses.

A sampled assessment

The need for in-service as adjudged by the lack of specialist certification. Remedial or corrective reading at present is not a state mandatory subject with perhaps only a couple of exceptions known to this writer. In Pennsylvania reading is required for all students in grades seven and eight, as it is in California for those junior high students who do not elect a foreign language.

Many states do not yet consider it necessary to offer specialist certification other than the general certification for teachers.

	States Which Certify Remedial Reading Teachers	States Which do not Certify Remedial Reading Teachers	No Response
Group 1	7	9	2
Group 2	6	7	0
Group 3	4	6	0
Group 4	17	8	1
Group 5	11	11	4

States which offer specialist certification vary in their requirements. Generally, certification is attained through fulfillment of courses of study. An exception is California where the Miller-Unruh Reading Act makes provision to certify specialist teachers in reading for grades one, two, and three through a written examination

sponsored by the State Department of Education.

In Boston, requirements are a bachelor's degree, twelve credits in reading methods, plus passing an examination for a teacher of reading certificate given by the board of examiners.

Where no state or special provisions are made, school districts set their own criteria for specialist selection as are reported in order of frequency:

Teachers with extensive academic preparation in reading.

Teachers recommended by principals and supervisors, who receive additional training in course work in teaching reading.

Teacher's records are first screened by personnel; supervisor then schedules an observation.

Teachers from regular staff with particular ability to teach reading.

Teachers with outstanding success as a classroom teacher.

Any certified elementary teacher who is interested.

Teachers have had student teaching experience in reading.

Given recognition to the need for in-service training to help teachers to become proficient in remedial-corrective reading, all the districts sampled have made such provisions except three districts in Group 4 and four in Group 5.

Attendance to in-service training.

In response to whether attendance at in-service meetings is mandatory for the remedial-corrective reading teachers, the majority of districts responded affirmatively (see below).

Personnel responsible for in-service

As can be expected, responsibility for planning and conducting the in-service program in a district involves people in different positions, and the extent of involvement varies from district to dis-

	Districts Which Require Teachers Attendance for In-Service	Percent	Districts Which Do Not Require Teachers Attendance for In-Service	No Response
Group 1	12	66%	4	2
Group 2	11	75%	2	0
Group 3	9	100%	0	1
Group 4	15	60%	6	5
Group 5	20	80%	4	2

trict. In the smallest districts in Group 5, more assistant superintendents and directors of elementary education and directors of curriculum and instruction are reported as being responsible in the planning. In a few larger districts which have a separate in-service department, the director of the department plans for the reading area as well. It was interesting to note that some personnel directors have the dual responsibility for in-service in addition to their normal duties. Several representative committees have been reported working with the supervisors on the planning. On the whole, in-service planning in a large majority of districts in every sampled group rests upon coordinators, supervisors, or project directors who have direct responsibility for the program.

Decision made on needs for in-service. Almost unanimously, the content was predicated by the expressed needs of the reading teachers or as recognized by the supervisory staff. The needs may be revealed by a study of achievement test results, poor pupil performance in the classroom, competencies and experience of teachers, teachers interest in common problems, or desire for instructional improvement. Other techniques include surveying literature and research for trends, or planning by a staff committee to transmute teachers' requests into a realistic program.

In-service content components. To the query of content of in-service provisions for 1966-1967 and 1967-1968, responses are summarized here in order of frequencies:

Diagnosis of reading disabilities and administering tests to individuals and groups.

Demonstration of new materials.

Application of different approaches and techniques.

Teaching of specific skills, phonics, other word analysis, comprehension.

Use of equipment such as controlled reader and reading games.

Motivation-self-actualization, social and psychological factors.

Study of trends in reading programs and relation to own district needs.

Teaching reading in secondary schools. Reading in the content areas.

Discussions on achievement testing and interpretations of test scores.

Emphasis on the reading teacher as a schoolwide resource person.

Teaching reading to the disadvantaged. Multi age grouping for reading instruction.

Use of handbooks for remedial reading teachers.

Help from outside consultants. Out of ninety-three respondents only sixteen districts have had no help from outside consultants for in-service, ten of which are in Group 5 comprised of very small districts.

To the query regarding the different consultants invited to a district, the responses reveal an interesting picture but not a surprising one. For Group 1 comprising the largest districts, nationally prominent consultants dominate over other consultants. In Group 2, locally renowned consultants have a slight edge over the nationally known. In Group 3, consultants provided by publishers are used more often. For Group 4, locally known people and publishers' consultants share equal favor somewhat above nationally known consultants. Data for Group 5 is exactly the same as Group 4. An explanation of this analysis might well be that the larger the district, the more able it is financially to invite nationally prominent consultants to the district.

Evaluation of in-service programs. In every response group and without exception, informal evaluation approaches are used more than formal evaluation although the latter has also been used. For formal evaluation, standardized test scores have been used more often.

In-service training follow up. To the query of how in-service training is being followed up, the techniques of planned in-service work with special groups of teachers, and course work

sponsored by a local university or the school system have been noted more popular by nearly half of all the systems in every sample group. To a lesser degree, committee assignments and research activities with small groups of teachers are used. The least practiced is bulletin reporting on reading activities within the local areas and in other places. Other than the above mentioned, the more commonly used technique as reported by every group is classroom visitation by the coordinator and conference with the reading teacher.

Promising practices

Training classroom teachers in remedial-corrective techniques. Harnett County Schools in North Carolina have no remedial-corrective reading teachers due to the lack of properly certified personnel in this area. Each classroom teacher is regarded somewhat as a remedial-corrective teacher of reading. This has been accomplished by establishing an attitude of diagnosis-correction on the part of the teacher. Students who need remediation are not grouped homogeneously outside of the regular class structure although they are grouped within the class setting in terms of reading deficiency. Teachers have the opportunity to participate in a summer reading workshop lasting four weeks, during which demonstration teaching is the key. Students are brought into a class setting with a team of master teachers at each grade level. Groups of 20 to 25 teachers observe the demonstration and, at the conclusion, have a two hour block of time set aside for study, conference, and questions. In addition, formal graduate courses in reading are made available in the county through universities in the area.

Regular in-service sessions with released time or compensation. A practice which has gained momentum and sup-

port is in service sessions with released time. It has become common for reading teachers to devote a half or even full day regularly, depending on needs, for in-service activities. This is particularly true in districts where federal and state funding has initiated programs requiring reading specialists who had no formal training in the field.

An alternative is to hold sessions on Saturdays such as in Scranton, Pennsylvania. After introduction of materials and procedures in the first hour, immediate application is made to individualized and small group instruction during the following hours. Fifty teachers are involved in the plan and they in turn disseminate information and share skills developed with other teachers in their buildings. A new group of teachers would participate in the following year's program. Questionnaire data as analyzed by groups follows:

- Group 1 Half of the eighteen districts favor monthly meetings averaging two hours per session. Three other districts prefer weekly sessions from one to two hours. In Los Angeles, a very large district, semester meetings are held. In others, sessions are scheduled as needed.
- Group 2 Five of thirteen respondents reported monthly sessions; two provide for weekly meetings; one chooses biweekly; one prefers bimonthly, the others schedule sessions as needed.
- Group 3 The majority provides no regular sessions; three districts hold weekly sessions, one provides 1.0 meetings per month, two have monthly meetings.
- Group 4 Four districts hold weekly sessions; three have bi-weekly meetings; four favor monthly meetings; one district holds one meeting per week for ten weeks; and another provides for four meetings per year, eleven districts make no provision for any regular sessions.
- Group 5 Four districts reported weekly sessions, one holds weekly meetings for fifteen weeks, one has biweekly meetings for ES-EA teachers only; one district began with biweekly meetings and changed to monthly meetings, four other districts chose to have monthly sessions; others range from three meetings per year to no provisions.

Team teaching for mutual benefits

With the dearth of reading teachers at present, team teaching of reading is a luxury perhaps few school districts can afford. Yet, once two teachers have discovered the magic formula of working together successfully, the motivation and excitement of teaching is far beyond what one teacher is able to achieve. Such is a team observed in a junior high school in Pittsburg, California.

Short term teaming between a reading and a classroom teacher can produce highly beneficial results. Planning lessons together affords opportunities for teachers to exchange ideas, better understand each other's roles, and develop a closer working relationship. With an established relationship, it would even be possible for the reading teacher to relieve the classroom teacher upon occasion to enable the latter to receive additional training. Concomitantly, ever growing insight into classroom reading behaviors, including that of retarded readers, would increase the reading teacher's efficiency in assisting the classroom teacher.

Visitations made within or outside of the district. Although not an innovative technique, a week's visitation with an experienced teacher has proved to be a highly rewarding in-service experience especially for some new teachers.

Even visitation of brief duration can be valuable. From a recent visitation made by a reading teacher and a special education teacher to observe the aforementioned team in Pittsburg, California, so inspired are they that their own teaming is now being planned for next year.

Cultural experiences—expanding horizons for reading teachers and students alike. Some federal and state funded reading programs, such as ESLA Title I and California's Senate Bill 28, in effect encourage enriching experiences and expanding cultural horizons

he part of the students who are

from deprived backgrounds. In implementing these programs, reading teachers in Berkeley, California have introduced students to an impressive array of cultural activities and events. Such common experiences have helped teachers to develop instructional materials that are more akin to the interests, motivation, and understandings of the students.

Reading teachers assuming larger role in in-service. In those districts which provided reading teachers for a number of years, it is possible or even advisable for the experienced reading teachers to assume a larger role in in-service training for others. One district has a reading teachers' advisory group which provides a number of services, as well as conducts systematic investigation into various reading problems. Several members of this group serve as speakers for various workshops. There also are demonstration teams which, upon request, will show techniques and methods to various teacher groups.

The leading reading teacher program in Atlanta, Georgia serves as another example in that the leading reading teachers conduct in-service workshops right in the school for whole faculties or for small segments of the faculty. Such in-service programs for small groups are held during the school day.

In Cleveland, Ohio, when the in-service enrollment exceeded sixty teachers, a rotation plan was utilized. The sixty teachers were divided into four groups. Four reading teachers, each specialized in an area, were able to meet each group during the session. For example, teacher one, a specialist in phonics, prepared a lesson and presented it to each of the four groups at different periods. The other three teachers followed the same procedure with lessons on vocabulary extension, comprehension, and appreciation.

44 Summer and regular workshops.

The nature of a workshop in a school district is more likely directly related to teacher needs, available personnel and resources. Use of workshops has increased in the past few years.

In one district, within a six-week workshop, teachers had an opportunity to tutor a youngster one hour per day during the entire session. This provided valuable insight into the problem areas of reading instruction and an excellent learning situation for the pupil. It was also an opportunity for the teacher to try the latest ideas, techniques, and methods with those who are in real need of specialized help.

Another technique has produced excellent results. A small cluster group of four youngsters works with a participating teacher on problems common to all. This provides a chance for the teacher to develop teaching techniques and methods in small group operations and for youngsters to act and react in an exciting learning situation. Data from the Questionnaire on summer and regular workshops follow:

Group 1 More workshops to be held in summer than during the school year. Length of workshops ranges from a five-hour day to three weeks. St. Louis, Missouri had a semester workshop to train teachers.

Group 2 Only two districts held summer workshops for four weeks. One district has biweekly and one has monthly workshops. Another district provides for 20 hours per year; another scheduled occasional workshops; two make no scheduled provisions, and four make no provisions at all.

Group 3 Only one district held a summer workshop. One holds weekly workshops, three make no definite provisions, and five report no provisions at all.

Group 4 Fifteen districts make no provision for workshops. Two have weekly workshops, four have monthly workshops ranging from one to three hours and five hold occasional workshops.

Group 5 Half of respondents make no provision for workshops. Patterns for the others vary: four have monthly workshops; one has one-hour workshops weekly, another provides for a 6-week summer college course, other summer workshops range from one to two weeks in duration.

Closed and open circuit television.
The closed circuit television technique, although not new, has yet to be used widely within a district, especially for remedial reading purposes.

In a recent in-service meeting for all Berkeley elementary teachers on the reading programs that are being used in the schools, television playback of reading activities involving pupil learning proved to be an effective technique.

The questionnaire response from the Montgomery County Schools in Maryland indicated that a cadre of specialists is being trained in category analysis of subject areas and teaching techniques. These specialists will work with closed circuit feedbacks and apply the total concept to in-service use as seems appropriate.

Another district reported having transmitted television programs to all schools for faculty viewing for thirty minutes at each school, continued with a follow-up program for another half hour.

The Bay Region Instructional Television for Education in California has produced two important in-service programs within the last sixteen months: one on "Linguistics and Language Learning" by Robert Ruddell and the other on reading programs, "Do You Read Me?" by Walter McHugh.

Three years ago at the University of Chicago, all summer workshop participants viewed via closed circuit television the ongoing process of diagnostic and instructional techniques.

A wider and more creative use of this electronic medium for in-service seems to be a promise of tomorrow.

Practicum in district reading clinic.
The operation of a bona fide reading clinic in a school district is a luxury few administrators dare to entertain. Only trail blazers like William Kottmeyer who is a reading expert himself have succeeded in meeting this challenge and in guiding its development.

In his *Manual for Reading Clinic Teachers*, published by the St. Louis, Missouri, Public Schools, Kottmeyer states, "The St. Louis Public Schools currently operate six reading clinics which serve the six elementary school districts and a seventh clinic used to train undergraduates in diagnostic and remedial reading techniques at Harris Teachers College. We have in recent years followed a pattern annually of assigning to each of the district clinics a number of St. Louis Public School teachers who serve one school year in the clinic in order to secure training in this important area of our instructional program."

To be sure, some districts have tried to operate their own clinics only to discontinue them later due to mounting costs and/or improper guidance. This should not, however, discourage the strong at heart and the courageous in spirit to initiate such an undertaking should the local needs warrant a clinic setup.

Teacher Orientation Meetings—Summary of questionnaire data:

Group 1 Two thirds of the districts provide for some type of orientation training especially for new teachers. The lengths of meetings vary from one-half hour to six or eight days.

Group 2 Half of the districts provide no orientation meeting. Others hold meetings ranging from three hours to three days.

Group 3 Half of the respondents also reported no provision. Others arrange meetings from two hours to one week.

Group 4 Four fifths of the districts make no provision. One fifth hold meetings from six hours to one week.

Group 5 Over half of the districts provide none. Among ten other districts, meetings vary from two hours to three full days.

Formal course of study at higher institutions. Following through a sequential course of study in remedial-corrective reading is by no means a new practice, yet it perhaps remains to be the most effective way for teachers to receive systematic training in the theories as well as teaching skills in area of reading disabilities.

Passing a written examination does not guarantee that a teacher is a reading specialist although it does legally qualify one to hold that title. California's Miller-Urruh Reading Act wisely encourages specialists to continue a course of study at any recognized higher institution by providing scholarships.

Projects, such as NDEA institutes held in numerous universities and colleges, have accorded teachers and specialists further opportunities for in-service training. An NDEA Institute for Advanced Study in Secondary School Remedial Reading under Pauline Brown offers in-service education for teacher-coordinator teams during 1968-1969. The unique feature of combining studies with supervised field experience gives promise of quality in-service education for participants.

Attending local, state, and international conferences. A great number of local and state IRA councils across the country have served as effective agents in in-service education for teachers and specialists. This writer has witnessed the growth of the Greater Washington Reading Council in the District of Columbia from a handful of participants to a vast membership with many well-planned workshops and lectures. State conferences have likewise grown. California State Reading Council has already developed, within only two years, devotees to its annual conference.

In-service media to be sponsored by other local organizations also merit investigation. Meetings and workshops of calibre spring up continually among the various counties in the San Francisco Bay area. Another highly praised conference is sponsored by the San Francisco Medical Center of the University of California, at which specialists from multidisciplines are drawn into dialogues for the benefit of the participants.

Conclusions

In-service programs for remedial-corrective reading teachers require diagnosis of teacher needs, just as remedial-corrective reading programs demand diagnoses of pupils. The more the strengths and weaknesses of teachers are known, the better the program can be developed.

Provision for in-service education for reading teachers tends to be multi-varied. As it is desirable to provide many approaches to meet the individual needs of pupils in reading, so it is advisable to provide many opportunities to meet the individual needs of reading teachers. The greater the varieties in terms of alternatives for in-service, the greater is the likelihood for the program to serve the greatest number of teachers and to meet their needs.

It is unnecessary to deny that even with an increased interest and provision for in-service, many teachers remain unchanged and unaffected in their teaching and attitudes. These teachers may be the ones who become least involved but, at the same time, the ones who need in-service training most. If in-service education is to increase its effectiveness and to meet greater success with the reluctant teachers as well as the proficient ones, we need more creative ways to challenge and motivate teachers.

In-Service Education in Reading: Remedial and Corrective Teachers

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THIS TOPIC encompasses three levels of actual participation in in-service education in the areas of corrective and remedial reading and reflects certain characteristics of in-service programs

as outlined by Ira Aaron in the IRA publication, *Conducting In-service Programs in Reading*. To some extent the levels of in-service training are representative of the kinds of activities which are suited to teachers at varying levels of participation in this more specialized area. The first is a kind of introductory survey of corrective and remedial aspects of the school program; the second is a systematic on-the-job training in procedures restricted to secondary or less severe reading retardation, and the third is concerned with coordination and guidance of reading specialists in system-wide efforts to eliminate reading disabilities. Goals and desired outcomes were defined in the beginning; each program was based upon actual instructional problems in reading; each was flexible; there were opportunities for follow-up activities and individual work; and adequate time was given for each level of work.

Survey-type approach

The first type of in-service program is based on the following beliefs:

1. The developmental, corrective, and remedial aspects of a reading program are integrally related.
2. Most effective work is achieved when the faculty sees the program as an organic whole, characterized by the cardinal understanding that reading disability cases are retarded readers whose mental ability should enable them to read considerably better than they do.
3. Many disabilities stem from faulty and limited practices within the school.
4. Information on which a strong developmental program is based can provide information basic to first steps in the diagnosis of reading disabilities.

In-service work with teachers at this level may comprise periodic sessions throughout a quarter, a semester, or a year, with subsequent periods of applying certain principles and procedures. The main aims here are to see the corrective and remedial aspects of the program as extensions of the regular

program, technical in its many facets, but a part of logical efforts to make each case capable of eventual participation on a developmental level, commensurate with his capacity, needs, interests, and aspirations. The goal is not to make reading specialists of a total faculty, but to develop faculty readiness for cooperation with those who are prepared to do corrective and remedial work. Caroline Tryon once said to a group of regular teachers who were in a beginning course in the area of human growth and development, "It is important that the layman shall know what is involved in the more technical phases of an area so that he may help where he can and have the wisdom to realize where he dares not tread without further training and deeper insights."

For this survey level of in-service education, therefore, the considerations involve the following: What are the major steps in the diagnostic process? What regular information from the cumulative and daily files is vital to the reading clinician? What further information must the specialist seek, and how can this information be helpful to the classroom teacher? What can be done for the cases who are in remedial phases of treatment so that the classroom and clinic will not be in conflict? What parts of diagnostic tests may be used to advantage by classroom teachers? As each question is considered, appropriate applications are made.

Intensive approach

The second type of in-service training is systematic on the job training in clinical procedures which are restricted to reading disability cases for which the causation is mainly environmental or external. The direction for small-group or individualized instruction seems clearly indicated. This kind of in-service training involves reading teachers who have had 1) background

elementary and secondary levels, with emphasis on the developmental aspects of reading, 2) at least three to five years of successful classroom teaching experience; and 3) formal training in a course which treats reading difficulties and their possible causes, with some general experience with individual cases in reading.

Under the direction of a well-equipped and staffed reading center or clinic, teachers engage in the major steps in the diagnostic process, with from one to three cases in their respective school situations. There is continuous access to the center when any procedures require more technical skills and equipment.

First, participants secure background information about the pupils. Parents—representing all areas from the disadvantaged to the advantaged—have become aware of the importance of how the child or youth sees himself, of the appropriateness of questions which years ago might have seemed almost sacrilegious, of psychomotor development, and of attitudes toward siblings. In-service clinicians have grown also—to the point that they are able to accept criticisms from their colleagues regarding techniques of interviewing, ways of approaching and dealing with delicate subjects, and suggestions for general improvement.

Perhaps at the level of establishing expectancy the groups have done the greater soul-searching. It is reassuring to note that, as Albert Harris stated in the *Sixty-Seventh Yearbook, Innovation and Change in Reading Instruction* (Chapter 5), many of the individual intelligence tests are representatively valid and widely used. Yet, there remains the realization that they, along with their culture fair and free supplements, have not achieved full identification of potential among many groups that are blocked by racial deprivations, adjustment problems, and

varying degrees of learning disabilities. Frequently, the teachers have returned to measures of listening, arithmetic computation, and considered teacher judgment in terms of pupil functioning in areas not measured by the tests. Indeed, in the give and take of in-service study, establishing level of expectancy has been informational, frustrating, and challenging.

At the point of determining the reading levels of the cases, it is generally agreed that at the elementary level, tests are becoming more and more effective and discriminating at the reading levels of pupils who can operate in a silent reading situation. Teachers tend to favor the standardized tests which 1) possess formats as much like the basic readers as possible, with accompanying pictures and easy recording characteristics, 2) provide a profile of general skills in word identification, vocabulary, and comprehension; and 3) describe the results in a way which allows realistic, yet flexible interpretations. Many students and teachers have become quite at home with stanines.

Perhaps the most enjoyable phase of this task of determining general reading levels has been in-service training in the use of oral reading tests and scales. Here again, the tape recorder has been invaluable. As each teacher submits her tapes to the consultant for class evaluation or appraisal by the consultant, the first steps in diagnostic testing come alive. The silent reading test results take on new meaning in terms of reasons for certain errors, actual habits which may work to the detriment of comprehension, and the possibilities that some students are truly more visual than motor or aural.

The fourth step in on-the-job phases of clinical procedures moves naturally into more serious diagnosing of cases. Here, unlike the usual laboratory setting where several diagnostic instruments are used in the beginning, the

in-service groups usually focus on one instrument for purposes of sharing successes, problems, and insights. One such in-service group used the Durrell Analysis because 1) the range of grade levels is fairly wide; 2) it runs the gamut of areas usually covered in a diagnosis; 3) it is illustrative of certain timed and intensive procedures; and 4) it permits the incorporation of other results such as might be secured in checking modes of learning, giving special perceptual tests, and administering informal reading inventories. Within the fourth step, many specialized devices are used for visual and auditory screening for ascertaining levels of adjustment, for inventorying general and reading interests, and for bringing to bear much of the background information which has been secured at an earlier phase of the diagnosis.

The fifth step in on-the-job training involves individual and group decisions regarding the causes or influencing factors which may account for the reading disability. Among three groups of teachers who have participated at this level of corrective and remedial work, factors accounting for the difficulties in reading have been ranked in the following order of importance: for the disadvantaged—general environmental and language problems, premature or faulty reading methods, and limitations in general levels of thinking, for the more favored groups—premature or faulty methods of teaching, limited capabilities, and definite problems of adjustment. Also, as Helen Robinson contended in her classic study of *Why Pupils Fail in Reading*, the constellation of difficulties obtains in most cases but, inevitably, there is one disability which seems to form a nucleus around which the other problems revolve. This central concern is usually the key to beginning procedures.

At the training and follow-up levels,

the consultant becomes what Aaron describes as "observer, resource person, and catalyst." A controlling principle in these activities is the belief that good corrective or remedial teaching is effective teaching of reading intensified in the interest of eliminating a specific deficiency. At points it is believed, however, that the emphasis can work to the detriment of other skills, but the clinician must be insightful and skillful enough to effect the balance in performance, once the serious deficiency has been removed or alleviated. An obvious example of the latter might be intensive word analysis at the expense of quick perception or an instantaneous gestalt. The latter can be achieved, once the sometimes rough road to accuracy has become more easily traveled.

Coordination of services

The third level of in-service work with corrective and remedial teachers calls for less intensive training and much more coordination. Usually, these reading teachers have been trained in different settings and in varying schools of thought and practice. The subsequent jobs of the consultant become those of 1) helping these teachers develop a kind of system-wide body of understanding, policy, and basic definition with which they can live and grow and 2) finding ways of using these professional workers in ways of maximum benefit to pupils and teachers.

On this level of in-service training topics such as the following have been included: What are the compelling needs of the system? (Here, the checklist by Sidney Rauch in the March 1968 *Reading Teacher* can be of assistance.) What will constitute minimum essentials for any types of laboratory or clinic situations? With what innovative methods and procedures does it seem feasible to work this or in a longer-range program?

In deciding how to be of most help to teachers, the consultant has permitted these questions to form the basis for discussion and later procedures: At what times during the day may the reading specialist be of most help to teachers within a given school? What are the best times for demonstrating actual techniques within the classroom? What procedures seem to need attention in in-service meetings? What are the possibilities for intra- and inter-school visitations to settings with promising practices? Out of the discussions of such queries has come the charting of blueprints for highly effective use of the talents and know-how of reading specialists who might otherwise come to an impasse in preliminary efforts to correct and remedy reading difficulties.

Projections

Out of these brief perusals of in-service programs for corrective and remedial teachers, it would appear that the following projections have some feasibility and even urgency:

1. Follow up and extension of the first level of work within a total faculty so that eventually, such introductory explorations of corrective techniques may increase the volume of small group reading instruction within regular classrooms. As school populations increase, this projection must become a reality.
2. More research at points in the reading diagnostic process wherein there are serious areas of uncertainty. At present the main concerns seem to be with measures of capacity for reading and with most effective modes of learning to read, once the causes of the disabilities have been identified.
3. Further differentiation of reading specialists, not only in terms of their professional training, but on the basis of their personal effectiveness in laboratories, clinics, and work with teachers and pupils.
4. Creative emphasis on prevention of reading disabilities.

With respect to the latter projection it is realized that preventive measures can never set aside the need for reading laboratories and clinics, but im-

vation and change lead this writer to predict that the crowds now waiting for assistance from them will decrease, and the programs for fewer cases will become more efficient and demanding of the creative efforts of all who assume leadership in in-service programs.

In-Service Education in Reading in Overland Park

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IN THE SPRING of 1967, school personnel of the Valley View School District 49 of Overland Park, Kansas, initiated plans for an in-service program in reading which was to be conducted over a substantial period of time and was to require the participation and cooperation of the entire school staff. This program seems to provide an example of in-service education which has resulted in improved instruction and in the upgrading of the total reading program. This paper will present the methods used in the organization of the program, the techniques used in implementing the program, and the immediate and anticipated results following the completion of the in-service education. Perhaps the ideas presented in this discussion will provide some guidelines for other in-service programs.

District 49 has many unique and outstanding features. It is a district of elementary schools in which growth has been phenomenal. The year of 1956 found only nine students enrolled under the guidance of one teacher. In 1967, ten years later, 3,378 students were enrolled under the guidance of 163 teachers. During the short period of ten years, six new buildings were added with physical facilities which

provide maximum opportunities for instruction. Classrooms furnish adequate space for grouping pupils, and folding walls allow for team teaching or for large group activity. Teachers are allowed freedom to use teaching techniques and grouping procedures in which they are particularly interested. Mechanical aids, equipment, and supplies are more than adequate. Closed circuit television, record players, motion picture projectors, filmstrip projectors, tape recorders, overhead projectors, maps, globes, innumerable library materials, and printed instructional and supplementary materials are available and used to enhance the educational programs of the students.

In 1967, when plans were initiated for an in-service program in reading, specialists or coordinators were working in the areas of science, mathematics, art, guidance, speech, music, and physical education. Yet, a specialist for the all-important area of reading had not been employed; however, a recognized need existed for the services of a coordinator of reading instruction.

Perhaps the most noteworthy characteristic of this school system was the attitude of school board members, superintendent, building principals, counselor, librarians, and classroom teachers toward reading improvement and in-service education. Even though their district was superior in facilities, materials, and instruction, personnel saw possibilities for further improving their instructional program in reading. The consensus seemed to be that the most effective way of achieving improvement would be through an in-service reading program tailored to meet the specific needs of District 49.

Planning the in service education

Because the in-service program was to be specifically tailored to the district, a survey of the total existing reading program was planned. The

survey was requested by board members and by the superintendent and received their wholehearted cooperation and support. A university faculty member with specialization in the areas of developmental, diagnostic, and remedial reading was contacted to conduct the school survey.

Prior to the arrival of the university reading specialist, a reading survey questionnaire was completed by each teacher within the system. The questionnaires were labeled with a grade level and the name of the school, but teachers did not sign their names so there was no way of judging individuals in light of their responses. Information obtained from the questionnaires concerned grouping methods, materials, teaching techniques, extent of teaching experience, suggestions for modifications of the existing program, and perceived needs for in-service education. To provide additional information for the surveyor, tests of intelligence and of reading achievement were administered to a random sample of students from each grade level. Data from the questionnaires and from tests provided much valuable information for planning and completing the reading survey.

The university reading specialist spent an entire school week in the district and visited a total of seventy-eight classrooms while reading instruction was in progress. Additionally, the examiner had an opportunity to talk with the teachers responsible for the reading instruction within the classrooms visited. Opportunities were also available for discussions with librarians, grade level chairmen, remedial reading teachers, and principals of each of the buildings within the district. Two special sessions were conducted with grade level chairmen, principals, and remedial teachers.

Compilation of data from questionnaires, from tests, and from interviews resulted in a synthesis of

weaknesses of the district's reading information concerning strengths and program from kindergarten level through the sixth grade level. Decisions were made concerning strengths and weaknesses in relation to criteria accepted by most authorities in the field of reading and in light of recommendations resulting from the nationwide Harvard-Carnegie surveys. Needs were determined according to those weaknesses which seemed to occur generally. It was concluded that many of the recommendations could be implemented if successful in-service education could be conducted. For this particular school system, in-service education seemed necessary to accomplish the following:

1. To identify the dimensions of the reading act so that teachers at all grade levels could coordinate efforts in working toward refinement in reading.
2. To establish a consistency in the use of basal and supplementary reading materials so that a systematic, sequential reading program would exist from kindergarten level through grade level six.
3. To emphasize the skills of critical reading and to suggest specific instructional techniques which should result in skill development in this area.
4. To identify the role of oral reading, instruction and to suggest means of providing instruction in purposeful oral reading.
5. To place particular emphasis upon those reading skills which are necessary for effective reading in the content areas.
6. To coordinate the remedial reading program with classroom programs.
7. To implement a program of evaluation which would measure gains in reading achievement, compare reading achievement with reading expectancy, provide a screening for disabled readers, and result in curricular improvement.

In-service education in action

The in-service program was planned to extend over a substantial part of the school year. Education was distributed over a period of time to provide persons participating with sufficient time to use and react to techniques and

ideas presented. Actually, this proved to be one of the most beneficial aspects of the program since many teachers voluntarily reported the successful use of techniques and approaches which they had never used before.

In-service sessions were under the leadership of the university faculty member who had conducted the reading survey during the planning session and two colleagues who had studied the survey thoroughly. Conferences were held by these three persons to discuss feasible and advantageous means of conducting the program.

University credit or local board credit was given to each participant in the program as additional compensation for attendance. All classroom teachers as well as all remedial teachers, librarians, building principals, and the superintendent participated. A reading coordinator had been employed immediately following the reading survey since it had been suggested by the university reading specialist that a reading coordinator could do much to reinforce the in-service education. The reading coordinator also participated in the in-service sessions.

Because the entire school staff was involved in the program, some participated during the first semester of the academic year while others participated during the second semester. Consideration was given to the control of group size. During the first semester, those responsible for kindergarten and grade one instruction comprised one group while those responsible for instruction in grades two and three comprised a second group. A third group was organized for those responsible for instruction in grades four, five, and six. Each group met for approximately three hours each week. During the second semester, because fewer persons were enrolled, two groups were organized. Those responsible for kindergarten instruction

instruction at the primary level

formed one group while those concerned with instruction in intermediate grades formed the second group.

Each weekly session involved active participation from members of each group as well as a prepared presentation from the university faculty member responsible for leadership. The prepared presentation each week was related to a different area selected for study. Films, recordings, and videotapes were used to reinforce the leaders' presentation and to present demonstrations of effective teaching techniques. School persons were also assigned readings in two reference materials as a prerequisite for each weekly meeting.

Following a presentation by the faculty member in each group, participants in the program were divided into smaller groups. This division provided an opportunity for members to react to the initial session and to formulate questions which depicted their specific concerns in relation to the current topic. After concerns had been expressed and questions formulated within the smaller groups, all met together again with the instructor for answers and elaboration.

Between weekly sessions, key persons from within the district reported specific requests or expressed needs from school personnel. Teachers made it clear, for example, that they wanted practical suggestions appropriate for their school district rather than theoretical generalizations. This weekly communication made it possible for group leaders to tailor their efforts even further to the specific needs of the district.

At the completion of the in-service program, each participant was asked to synthesize his basic beliefs in relation to the areas covered during the program. This in essence offered some opportunity for an evaluation of the in-service endeavor since responses

could be compared with responses elicited during the earlier reading survey. A greater homogeneity of beliefs seemed to exist following the in-service education, and the responses from the evaluation will provide the framework for the district's new curriculum guide in reading.

Appraisal of the in-service program

Results of the program just described are difficult to determine and evaluate since only a short time has elapsed following the completion of the endeavor. As many persons have suggested, it is the purpose of in-service education in reading to improve classroom instruction and to involve an entire school staff in efforts for the improvement of the total reading program. Future observations will reveal the extent to which these purposes have been fulfilled; however, even while the program was in effect and immediately following, advancements were noted.

The reading coordinator has for a year been very actively engaged in reinforcing areas presented during the in-service program. Teachers and administrators have recognized the value of her assistance, and she is constantly responding to their requests for guidance and advice.

Teachers have already reported the use of techniques and procedures which they had not used previously. Because of the success with these techniques, they have been encouraged to search for others. One teacher readily admitted that she had never attempted to do anything with the skills involved in critical reading until this area was covered in the program. Before the semester ended, she presented to one of the instructors a lesson plan which she had used quite successfully to teach a lesson in critical reading. Furthermore, she enthusiastically commented that such instruction would be

come a regular part of her reading instruction.

The total school staff seemed to be more cognizant of the need for a sequential, systematic reading program and were making attempts to coordinate their programs from grade level to grade level. Several meetings were held by a curriculum committee to investigate thoroughly the contents of a number of basal reading materials and to determine which series would best fulfill the needs of the district. These meetings resulted in the purchase of new materials which seem appropriate.

Professional meetings related to reading were attended by more persons during the year devoted to in-service education than during the preceding year. Whether this attendance can be directly attributed to the in-service education is not certain.

Certain characteristics of the described program seem worthy of emphasis as contributors to the success of the program:

1. Planning and implementing the in-service program was a careful process which took place over a substantial period of time.
2. A reading survey preceding the in-service education provided information necessary for tailoring the program to the specific needs of the district.
3. School board members and the superintendent felt a responsibility for curriculum improvement and took the initiative to plan an intensive program for improvement.
4. Building principals participated in the program, gave it their active support, and implemented changes in their buildings.
5. All classroom teachers, special reading teachers, and librarians participated in the program.
6. The size of each group was controlled so that all members of each group had opportunities for active participation.
7. Question and answer periods following each topic presentation provided opportunities for further clarification and for additional specificity.
8. Interaction among group members seemed especially beneficial since members often arrived at answers

appropriate to their situations while discussing and formulating questions.

9. Demonstrations through films, videotapes, and recordings provided reinforcement for the presentations by the leaders of the groups.
10. Weekly communication between key school persons and the leaders of the in-service program provided opportunities for revisions deemed desirable.
11. Evaluation at the close of the program offered an opportunity for participants to synthesize their ideas concerning a philosophy of reading for their school system and to state their objectives and goals of reading instruction.

The story of in-service education in reading in Overland Park has not been told to suggest that all in-service programs should be organized in the same manner. Each school society has its unique strengths, weaknesses, and needs. Perhaps the story will, however, provide an example of a program which was tailored to the *specific* needs of a school district. This characteristic, after all, is perhaps the most important consideration in planning and implementing in-service education. Perhaps the story will also substantiate the need for continuous education, even when strengths far surpass weaknesses.

The Learning Disabilities Teacher

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IN 1959 the State Legislature of New Jersey enacted a law designed to help local school districts provide a more meaningful and effective program of education for 1) children classified as emotionally and socially maladjusted, and 2) pupils whose behavior indicated that they would eventually fit into such a category unless they received immediate help.

To implement this legislation, the New Jersey Department of Education wrote, and the State Board of Education approved, rules and regulations which called for state financial reimbursement to local school districts that hired special services personnel who functioned in a specified manner. Such special personnel were to represent four areas: child psychiatry, psychology, social work, and remediation of instruction. It was further expected that while representatives of these four fields would comprise the basic membership of a child study team in a school district and would be responsible for classification procedures, the total team would draw upon the particular contributions of many other school personnel. The principal, nurse, school physician, guidance counselor, the classroom teacher, and supplementary teachers such as the reading specialist and the speech correctionist would be involved in the identification of pupils who required a special educational program and in the development of the program itself.

Although the primary impetus behind the 1959 legislation was the need to provide for the already socially maladjusted or emotionally disturbed child, the interpretation of the law by the State Board of Education and the professional staff of the New Jersey Department of Education expressed deep concern for preventive measures and the concomitant necessity for early discovery of those children who exhibited symptoms of distress. There was a general agreement that in the school setting such signs would most likely be manifested in learning disabilities defined as failure to meet educational demands or to make satisfactory educational progress.

The fact that "remediation of instruction" had been included as an integral part of the four special personnel areas called for both an upgrading

of the traditional role assigned to the educator in terms of special education, and the defining of a broader concept of remediation than had hitherto held sway, so that it could be understood to embrace the whole child in his total curriculum rather than be limited to corrective lessons in one academic area and in isolation from the regular class and its teacher.

The classroom teacher is an integral part of the pupil's school environment. Discussion among the professional staff and referral to research studies in the area of remediation strongly underlined the need for services that would affect the climate of learning in the classroom through specialized in-service training and direct assistance provided on a continuing basis for the teacher. Not only was it felt that it was unrealistic to continue to think that taking children out of the classroom was the best or only answer, but such a solution used too frequently quite often created an equally difficult situation where it was not possible to return the pupil to the regular class and have him succeed, and where the classroom teacher began to feel less competent, less inclined, and less involved in the planning and execution of an appropriate instructional program for the handicapped pupil.

The staff of the New Jersey Office of Special Education working closely with its advisory council, other members of the staff of the Division of Curriculum and Instruction, the deputy commissioner, and the commissioner of education concluded that although supplementary instruction such as special remedial reading and speech correction was necessary and that local school districts through state financial reimbursement would be encouraged to make these available where needed, it was most important that services be provided which would affect the classroom teacher's work with pupils classi-

fied as handicapped and having learning disabilities. Such services would be directed toward meeting the needs of these children, toward investigating, innovating, and demonstrating methods of instruction which offered possible success, toward finding, devising, or adapting helpful educational materials, toward suggesting and planning educational experiences. It was believed that remediation services such as these to help the classroom teacher feel more able to work with the handicapped, but which also affected him in terms of how he saw his role and the pupils in this class, would be effective in the prevention of educational disabilities as well as in their correction.

Under the Rules and Regulations adopted by the New Jersey State Board of Education to implement the Beadleston Act of 1959 the title of remedial instructor was used to designate that member of the child study team whose function was concerned with remediation of instruction. This title was maintained in the Grossi Act of 1963. In approving the rules and regulations of Chapter 29, P. L. of 1966, however, the more appropriate title of Learning Disabilities Specialist was adopted and is currently used.

The role of the learning disability specialist, originally developed in response to legislation which was permissive in nature and directed toward helping to provide an educational program for emotionally and socially maladjusted pupils, was extended in July 1966 to implement legislation which made it mandatory that public school districts provide an appropriate educational program for all handicapped children who are able to profit from instruction.

The learning disabilities specialist (LDS) is concerned with children identified or classified as handicapped where learning disability is a significant attribute of their behavior. The

focus is on basic physiological, psychological, environmental, and academic causes for the learning disability rather than on the subjects taught in the curriculum. Prevention of disability is considered important and the efforts of the LDS are directed toward those children who give early evidence of becoming seriously handicapped unless preventive measures are taken rather than toward those children who would without special help achieve relatively normal success though they might not reach their full potential. Although the LDS is expected to and does work with the special teacher of the N. I. class, the blind, the deaf, and the M. R., it is probable that he will be called upon most frequently to work with the classroom teacher in those cases where the pupil has a vision or hearing problem not grave enough for him to be classified as blind or deaf, low mental ability but not so low as to place him in a class for the mentally retarded, social or emotional problems not great enough to classify him as maladjusted in either or both of these areas, or poor physical coordination but not severe enough to categorize him, as physically limited.

Responsibility for the selection of the LDS has been placed with the local school superintendent who has been encouraged to choose a master teacher from his own staff for this position. If a study of the teacher's educational background indicated the need for further specialized training, a reasonable amount of time has been allowed for this requirement to be met. Finding the right individual to perform this function on the child study team was and continues to be considered the necessary first step.

Because the LDS must be accepted by the classroom teacher if meaningful changes are to be effected, it is considered to be of utmost importance that the individual selected for the position evidence, through experience in

the classroom, of having earned the respect of other teachers, special services personnel, and the school administration with whom he has worked.

Today, the LDS functions 1) as an educational diagnostician, who, in conjunction with other special education personnel, especially the psychologist, determines the nature and causes of the child's learning disabilities; 2) as a consultant to the classroom teacher and the school administration regarding the use of specific teaching methods and materials used with handicapped pupils; 3) as a teacher with an individual handicapped child or with small groups of these children for an indefinite period of time and in conjunction with the child's classroom teachers planned curriculum; and 4) as a member of the child study team which is responsible for the identification program, the classification examination and for recommendation to administration of the educational placement of pupils studied.

In January 1968, a total of 337 learning disabilities specialists served in the public schools of New Jersey.

To be fully approved as a learning disabilities specialist, a teacher must give evidence of having completed the following requirements:

- Three years of successful classroom teaching.
- A bachelor degree from an accredited college.
- Ninety clock hours of supervised clinical practicum.
- Permanent New Jersey teacher certification.
- A program of graduate college studies with a minimum of twenty-four semester hours credit in the following areas or their equivalent. (Work in the double starred areas is required.)

Education of the handicapped**
 Learning Theory**
 Physiological Bases of Learning**
 Orientation in Psychological Testing**

Remediation in Basic Skills**
 Diagnosis of Learning Disabilities**
 Correction of Learning Disabilities**
 Group Dynamics
 Methods and Materials for Teaching the
 Emotionally and Socially Maladjusted
 Curriculum Development in the Teaching
 of the Handicapped
 Child Growth and Development
 Teaching of the Culturally Handicapped
 Teaching of Reading
 Interviewing and Counseling
 Educational Psychology
 Community Resources

*The education of the handicapped***

- History of the development of educational services for children in each area of exceptionality.
- Study of present services and research dealing with the characteristics of children who deviate from the norm intellectually, physically, socially, and emotionally.
- Evaluation of current practices in the education of the handicapped.
- Study of the relationship of educational practices and their environmental settings.

*Learning theory***

- Study of what motivation is and its effect on learning.
- Study of leading theories of learning.
- Study of rewards and incentives.
- Study of interests.
- Study of a climate for learning.

*Physiological bases of learning***

- Study of the neurological development and physical readiness of the normal child for learning.
- Study of abnormal conditions of health which contribute to learning disability.
- Study of metabolic and infectious disorders which affect learning

*Orientation in psychological testing***

- Overview the tests applicable to educational psychology.
- Study the interpretation of psychological reports as they apply to tests administered. Study the appropriate

use of tests and the frequent abuse of test results. Study of test construction theory.

*Remediation in basic skills***

- Specific corrective methods and materials as related to specific diagnostic findings used in the teaching of reading, arithmetic, social studies and work study skills.
- Observation of actual teaching of children who are emotionally disturbed or socially maladjusted.

*Diagnosis of learning disabilities***

- Study of the nature and causes of learning disabilities as they involve visual perception, auditory perception, levels of abstract thinking, intellectual functioning, cultural and medical findings.
- Study of the methods and materials used in the discovery and assessment of learning disability.
- Study of the methods in arriving at a diagnosis based on evidence available.
- Study of ways of reporting diagnostic findings.

*Correction of learning disabilities***

- Study of methods and materials used to correct specific learning disabilities based on specific diagnostic findings.
- Study of methods and materials to be used to compensate for irreversible learning disabilities.
- Study of the use of time, organization and scheduling as corrective devices.

IRA and Reading Certification in Ohio

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DURING THE PAST eighteen months the
 Research Committee of the Ohio

Council of IRA has directed all efforts toward a single goal: reading certification in Ohio. Developing guidelines for committee action was similar to planning a long, hazardous trip.

The beginning

In November 1966, at the Eleventh Annual Reading Conference of the Ohio Council of IRA, the Research Committee generated the spark that has moved IRA forward on the road to reading certification in Ohio. The committee, aware that IRA in Ohio is a comparatively small but very dedicated organization, charted the trip carefully. We realized that much help would be needed from others: 1) permission from the State Department, 2) support from powerful educational groups, 3) cooperation of IRA representatives in all sections of Ohio, and 4) consultant services of educational leaders who knew the road.

Progress in 1967

By January 1967, direct contact had been established with the State Department of Education. Our meeting with members of the Division of Teacher Education and Certification served a dual purpose: 1) IRA was established as a dedicated, competent organization with valuable services to offer toward improving reading instruction in Ohio and 2) we gained insight relating to the many problems we could expect to encounter along the road to reading certification.

In March 1967, IRA's intention to work for special certification in reading was presented to a group of key educators representing the Ohio Education Association and the Ohio Council on Teacher Education. These organizations include college administrators, state department personnel, and public school representatives.

On May 16, 1967, IRA was invited to participate in a Targets Conference sponsored by the State Department of

Education. Teacher certification in Ohio was reviewed and discussed. Again, IRA's hope for specialized reading certification was presented.

During the summer months, we took inventory of our progress. IRA had made necessary contacts but little concrete progress had been made toward the ultimate goal of certification. As a result of careful reassessment of the situation, we decided to retool with jet power. In December 1967, three leading Ohio educators joined the research group as consultants to the committee: Mary Austin, Case Western Reserve, Cleveland—whose name is synonymous with reading; Bernard Miller, a member of the certification staff in the state department; and Harold Wilson, a member of the board of directors in the Akron Area Council of IRA and superintendent of Cuyahoga Falls City Schools.

As a result of the December 1967 meeting of the Research Committee, definite plans for recommendations for certification were resolved. The discussion was sometimes stormy and forceful but practical and productive suggestions resulted. The recommendations that were eventually accepted were geared to meet the specific needs and problems that exist in Ohio.

The problems

Problems relating to certification can be classified into three major categories: teacher shortages, time elements, and impersonal factors.

Teacher shortages

The impact of ESEA Title I programs. In a national survey (1967) made by OCIRA Research Chairman, all 50 state departments of education and the District of Columbia returned responses to the certification questionnaire. The results show that Ohio is the only state that has related certification for remedial subjects directly with ESEA Title I personnel.

The Division of Teacher Education and Certification, Ohio Department of Education released several certification guidelines between 1966 and 1968. The contents reflect the serious problem of teacher shortage related to staffing federal projects.

On February 4, 1966, a bulletin (6) from the director of certification indicated the need for finding remedial reading teachers in secondary schools:

May I call to your attention the statement concerning Temporary Certification for teachers for the High School (Grades 9-12) Remedial Reading Program under Title I of the Federal Elementary and Secondary Education Act, contained in a Bulletin dated January 5, 1966, from R. A. Horn, to ALL School Administrators, page 2 and 3.

It means simply this: No one will be approved for Temporary Certification for the remainder of this school year (1965-66) who does not hold a Standard Elementary Certificate of Provisional, Professional, Permanent, or Life grade (not Cadet or Retraining) and who does not hold a Bachelor's Degree from an approved, accredited institution. Such Temporary Certificate *WILL NOT* be renewed for 1966-67 unless the holder thereof has completed six (6) semester hours of an approved remedial reading program, details for which will be released later from Mr. Stephen's office.

Resulting from further pressures to clarify certification for employees in Title I ESEA Programs, a bulletin (1) was issued April 15, 1966, to provide emergency policies of certification in all remedial instruction. The guidelines relating to certification for teaching remedial reading were:

Remedial Instruction

1. Reading

- a. The holder of an elementary certificate, other than temporary, is considered properly certified for teaching remedial reading in grades 1-8, inclusive.
- b. The holder of provisional or higher grade elementary certificate may, upon request of the employing superintendent, be granted a temporary certificate for the teaching of remedial reading in grades 9-12, inclusive.
- c. The holder of a provisional or higher grade high school certi-

cate valid for the teaching of English is considered properly certified for the teaching of remedial reading in grades 7-12, inclusive, for the remainder of the 1965-66 school year, Summer 1966, and the school year 1966-1967, but must complete two courses (4-6 semester hours) in remedial reading toward completion of a teaching field or special certificate in remedial reading for 1967-1968 and years following.

- d. The holder of provisional or higher grade high school certificate valid for the teaching of English, may upon request of the employing superintendent, be granted a temporary certificate for the teaching of remedial reading in the elementary school.
- e. The holder of either a high school certificate valid for the teaching of English, or an elementary certificate issued upon the basis of a degree, will, upon completion of two courses (4-6 semester hours) in remedial reading, be issued a provisional special certificate valid for the teaching of remedial reading in grades 1-12, inclusive.
2. *Arithmetic* (Information is not relevant to this manuscript.)
3. *Temporary certificates* issued in any field under the above conditions will be valid for one year only. To continue in the same field of remedial teaching, the teacher employed under such certificate will be required to complete two courses in a pattern of remedial instruction. Upon completion of these courses the provisional special certificate will be issued.

In a bulletin (8) issued January 15, 1968, affecting temporary certification for 1968-69, remedial subjects are listed under *Acute Shortages* and include not only ESEA Title I Programs but similar programs. In the text that follows, look for the expressions *indefinitely* and *if he desires*. These statements hold disturbing implications for future certification proposals.

Remedial subjects—Teachers engaged in ESEA Title I and similar programs who now hold temporary certificates for teaching remedial reading or remedial arithmetic will be recertificated for 1968-69 upon completion of the following requirements:

1. Teachers with standard elementary certificates teaching in grades 9-12: Renewal of the temporary certificate with no additional course work required.

2 Teachers with high school certificates in English or mathematics teaching remedial subjects in grades 9-12: Completion of course in Techniques of Remediation and either Psychology of Reading or Methods of Teaching Arithmetic in the Elementary Grades whichever is appropriate to the certificate desired. The high school certificate then will be validated for the remedial subject.

A teacher with a high school certificate validated for a remedial subject may teach the subject in an elementary grade on a temporary elementary certificate, which may be renewed indefinitely without additional work.

A teacher with an elementary certificate may teach remedial subjects at the elementary level without further certification. By completing the courses specified for secondary teachers, however, he may have the certificate endorsed for the remedial subject, if he desires.

The above measures are attempts to meet an overwhelming demand for reading teachers working under ESEA Title I. The stability of many such programs relies entirely on the amount of federal funding. If federal funds should be reduced or removed, some programs may be cancelled if local boards cannot absorb the cost. In short, some school systems consider these reading positions as temporary as the temporary certification that authorizes the teacher to work in such a situation. Established minimum standards will encourage teachers to take specialized training and thereby stabilize and improve the quality of instruction.

Shortage of trained teachers. A shortage of trained teachers and a definite lack of specially trained teachers influence the reaction of state agencies regarding certification standards.

The 1965 statistical summary made by the Ohio Department of Education (7) shows that only 9,388 new teachers out of 21,422 potential teachers prepared in Ohio Colleges chose to give teaching service in Ohio. This means that the necessary supply must be recruited from other states and other areas of employment or that un-

trained personnel must be granted temporary authorization to teach:

Adding to this admitted shortage of qualified teachers is the demand of federally funded programs that in 1966 alone required 2,000 teachers in Ohio schools (2). In the fiscal year of 1967, there were 869 Title I projects recorded. Over 600 of these projects were related to reading programs (9).

This general shortage of teachers combined with ESEA Title I demands creates the necessity for temporary certification in many situations. Established minimum standards would encourage and force interested teachers operating under temporary measures to seek specialized training.

No out-of-state certification reciprocity. The problem of recruiting out-of-state teachers is compounded by the fact that Ohio has no certification reciprocity with other states. At least 40 states have worked out operable provisions for certification reciprocity. Ohio is not one of these (3).

Until Ohio has minimum standards for comparing and evaluating credentials for out-of-state teachers, the professional quality of reading teachers transferring into Ohio cannot be adequately determined.

Low standards for elementary certification. In 1951, only 19 states required a bachelor's degree for the elementary teaching certificate. In 1967, 46 states required a bachelor's degree. Ohio has been one of the 4 remaining states delaying to meet this standard. After September 1, 1968, Ohio will require a bachelor's degree as a minimum standard for an elementary teaching certificate (10). The Cadet Elementary Certificate will not be issued after October 1, 1968 (12).

In brief, as basic certification standards are improved, specialized certification requirements should be increased.

Time elements

Lack of adequate reading specialization training centers. Very few of Ohio's 51 public and private colleges approved for teacher education offer programs of training for reading specialization. The State Department is currently reviewing the program being offered (5).

It is understandable that certification agencies can hardly require a teacher to show credit for areas of instruction that are not provided in college training centers. Yet, some colleges probably will not develop necessary programs unless a certification requirement forces them to act.

Making a required credit course available is of no value to the teacher-in-training for reading specialization unless the instructor is by training and experience a reading specialist. Any instructor or graduate student can tell a teacher-in-training how to teach but only an experienced master teacher with specialized training can show the potential teacher what he needs to know and do in order to become a resourceful, successful reading teacher.

The schools of education in teacher-training institutions need to take a careful and comprehensive look at the quality of staff employed to train teachers. Also, colleges need to reappraise the use of inexperienced graduate students in training new teachers.

This problem restated means that until Ohio is equipped to train reading specialists, high-sounding minimum standards seem ridiculous to experienced teachers and to a state certification agency. Colleges in Ohio can no longer ignore the responsibility to provide programs to train reading teachers. Schools of education must establish effective training centers that meet the demands for minimum standards if reading certification is to become a reality.

State government procedures. In

initiating new certification for specialized areas of instruction, many legal steps must be considered.

The State Board of Education is the policy making body for Ohio Schools. This board was created in 1956 and is composed of members from each of the congressional districts elected for six-year terms (5). Among other responsibilities, these members prescribe minimum school standards and determine who should teach and how they should be prepared. The board's decisions in these two responsible areas control the future of IRA proposals for specialized reading certification.

State government regulations in Ohio (4) require that a request for a new area of certification be presented to a selected, representative panel of state department personnel. If the recommendations are accepted, the suggested standards must be made available to the public for one year. Following this period of time, a second hearing will be held at which time action will be taken on the recommendation.

Impersonal factors

The impact of packaged curricula. A strong impersonal force that affects certification problems is the method by which federal funds are often spent by schools. The effect of federal efforts to influence educational standards seems almost unbelievable. As federal funds pour in, many schools, in desperation to meet imposed deadlines, choose packaged curricula and packaged audiovisual materials. Large corporations are taking over many educational supply firms and text book companies. The combination of attractive packaging and increased sales pressure practiced by large corporations calls for careful and professional decisions in selecting educational materials. A well-trained reading teacher is needed in local schools to evaluate the contents of packaged materials.

The need for functional and effective instructional reading material is too great to risk making an unwise purchase.

The impact of commercial reading centers. With the advent of federal funding of programs outside the usual school operations and organizations, commercial reading centers are springing up in Ohio. Until the state of Ohio establishes and requires educational training standards for personnel employed to work with children in such centers, parents cannot be assured that the "teacher" hired to be a clinician, diagnostician, and remediation specialist meets any required standards for teaching. Until such commercial ventures are required by Ohio law to meet specialized reading certification standards, the centers will probably continue to operate as long as they meet health and sanitation standards. These latter standards are strictly enforced in Ohio.

Present status

After a careful study of the complicated certification problems that exist in Ohio, the committee wisely decided upon minimum standards that would establish recognition for reading as a specialized area by certification.

Three educators in the field of college reading selected the required subject areas (11) on the basis of practical application for use by prospective reading teachers: Mary Austin, Gertrude Badger, and Marjorie Snyder. The following areas indicate the results of their deliberations:

A minimum of 9 semester hours in the following special areas:

1. Foundations or Survey of Reading Philosophy—psychology and sociology of teaching reading, the scope and sequence of reading instruction
—3 semester hours
2. Diagnosis and Correction of Reading Difficulties—Causes of reading difficulties, diagnostic techniques and instruments; corrective procedures and materials
—3 semester hours

3. Laboratory Practice in Reading Improvement—Supervised field experience in diagnosis and remediation
—3 semester hours

All final recommendations for minimum standards are based on decisions made by the Research Committee.

The brochure of recommendations has been mailed to all superintendents in Ohio, all local and state IRA members, key personnel at the State Department of Education, selected principals in Ohio, and all directors of teacher education in colleges and universities.

The reactions of Ohio educators to the recommendations have been very favorable.

We have been assured by the director of Certification that a hearing for presentation of recommendations will be scheduled with the state board.

On the road to certification, travel has been slow and at times frustrating, but the spark of hope generated in November 1966, has grown larger and brighter as we glimpse the possibility of success. Until then, we are waiting, waiting, waiting. . . .

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Teacher Aide Experiences as a Supplement to Reading Methods Courses

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THE ISOLATION of the preservice teacher from the realistic demands of the elementary classroom seemed to one group of educators to impose serious limitations on preservice teacher education courses. Experimentation on several fronts appeared essential if this gap between teacher preparation and classroom practice was to be lessened.

The concern of these educators with this problem led to a coordinated effort by a team of college personnel in the School of Education of Indiana University and the principals and teachers of four schools in the Bloomington Metropolitan System to provide a series of classroom experiences for elementary education majors. The classroom experiences were integrated with the methods courses for which the col-

lege personnel were responsible. In addition, the experiences were planned so as to provide a gradual phasing-in to the teaching program through a series of teacher-pupil contacts, starting with tutorial sessions for one or two children and ending with a sequence of several lessons for a classroom of thirty to thirty-five children. These experiences directly preceded the student teaching semester.

Description of the general program

Students in the program were enrolled in four methods courses, language arts, science, math, and social studies. The students met with the college professors in classes three times a week and the same professors supervised the experiences in the local elementary classrooms, each professor assigned to one school with ten to twelve college students.

(For lack of a better title, teacher aides experiences was the term used to identify the classroom experiences. It should be evident, however, that the students were not to perform the routine clerical duties frequently associated with teacher aide assistance.)

The involvement of the methods course professors in the planning and supervision of the elementary classroom experiences was essential to the realization of the purposes of the program. Integration of the principles and procedures discussed in methods courses with classroom practices, utilization of classroom situations to illustrate problems and procedures common to each instructional area, and provision of limited small-scale teaching experiences in which students could apply teaching principles and use the materials and procedures suggested in the college classroom. A major advantage lay in the opportunity to discuss with students alternative teaching procedures, to analyze student lessons, and to provide consistent feedback on improvement of teaching practices.

It was not the intent of the faculty team who planned the project that the classroom experiences would be closely supervised or tightly structured by the college faculty. They viewed the project as a cooperative effort by the local schools and the university to provide a realistic context for the methods courses. Joint planning sessions of the professors and classroom teachers at the beginning of each semester and brief consultations at the time of each school visit provided direction and served to clarify purposes and procedures as needed. The degree of supervision of students by university faculty varied but a general rule of thumb of three visits in each eight week session prevailed. The timing and amount of student participation in the classroom was left to the discretion of the classroom teachers. The response of the teachers and principals was very generous; obviously, their interest in the project was vital to its effectiveness.

At the end of eight weeks the students shifted classrooms, thereby gaining experience at both primary and intermediate levels. The impact of this change was particularly evident in the language arts area. Students struggled at first to accommodate their language and ideas to the different maturity levels, but found the experience most revealing of themselves as prospective teachers and of children in terms of growth and development.

The elementary classrooms provided teaching experiences in all four of the methods areas: social studies, math, science, and language arts. The focus of this paper is on the relationship and value of the experiences to the teaching of reading.

Kinds of classroom experiences

The professors in each of the four methods areas prepared a list of recommended elementary classroom experiences. At the suggestion of the classroom teachers, the professors indi-

cated three or four activities in each methods area that would generally be required of all of the students. Final decision for choice of activities rested with the classroom teacher, however, and variation in kinds of activities within and among classrooms was strongly supported.

Selection of the recommended activities was based on the value of the experience for integration with the methods courses, realization of the limitations imposed by the inexperience of the students, and the restrictions which had to be placed on the amount of outside planning to be required of students. In view of the fact that the students were spending two full mornings each week in the elementary classrooms, it was agreed that little, if any, additional study time should be spent on lesson planning. The classroom teachers agreed that portions of the two mornings spent in the classrooms could be set aside for student planning sessions.

Forms were provided on which students reported the amount of time spent working in each methods area, kinds of activities, and size of groups with which they worked. Space was provided on this required weekly report for describing difficulties or raising questions; professors either wrote brief answers or arranged to discuss the problem with the student. Feedback obtained from these reports gave valuable clues to the needs of the students, and the levels of insight into the teaching-learning process.

Phase 1—observation

The first week was set aside for observation in the classroom. Students were urged to acquaint themselves with the basal materials, to observe the levels of reading competencies within and among the reading groups, to note what provisions the teachers made for individual differences, and to check the availability and composition of supple-

mentary materials including classroom and school libraries.

The impact of these two half days of observation was immediately reflected in student concern over the range of reading ability within one grade level and the implications of this range in terms of their preparation for teaching children to read. The necessity of having a wide range of supplementary materials available for classroom use was brought forcibly home to them also. Like many a beginning teacher, they were little aware of the special needs of the above average reader but very sensitive to the plight of the low achiever.

Phase 2—working with individuals

Attention to individual pupils marked the second stage of the phasing-in to teaching process. Teachers had been specifically requested to limit the amount of individual help offered by students to problem readers, tempting as this alternative appeared to busy teachers. Instead, contact with individual children at all levels of learning competencies was set as a goal.

Students coached pupils preparing oral reading presentations for an audience of classmates, reviewed lessons with children who had been absent, assisted children in the evaluation and correction of completed assignments, supervised special skill drill sessions with one or two pupils, and guided the better readers in supplementary enrichment activities. At this level of participation the teachers continued to do most of the planning. The students then implemented these plans, occasionally supplementing them if it were needed and they were equal to the task.

Phase 3—small group instruction

In the third phase, the focus was on small group instruction. Students and teachers planned activities for groups

of children, the size of the groups varying from three to ten. Preparation of a dramatic skit based on a previous reading lesson, practice sessions on word-attack skills, committee assignments, instruction in the use of the library facilities, and of reference tools, the opportunities were limitless. Techniques for establishing special groupings and the handling of inter and intra group relationships became issues of critical significance in the methods courses.

The first of the required activities in the language arts area slipped into place here. Students were to select a story to read or tell to a group of children, using an introduction which related the story to experiences of the children and to provide a simple follow-up activity. Because of its high interest appeal for children, this proved to be a very satisfactory initial experience in handling a group.

In a second required activity, students presented the new vocabulary words for one reading group. Most of the students followed the procedures set by the teacher or basal reader guidebook, a few ventured forth with ideas gathered from outside readings. Students then devised a simple scheme for checking pupil retention of the vocabulary and planned for reviewing and reteaching the words to those children who needed this additional work. Student comments on the differences among pupils in the amount of retention provided opportunity to analyze the teaching-learning process, identify probable causes for lack of learning or retention of learning, and suggest techniques for helping children who needed additional reinforcement.

A third required group activity was the planning and presentation of a guided oral reading lesson. This particular activity was selected to provide opportunity for discussion and use of the many alternatives to the round

robin practice common to elementary classrooms. Students found this activity a more difficult one to handle in that it required precise timing in order to mesh with the classroom teacher's ongoing program, and the planning and pacing of the lesson were key factors in its success. Under optional activities the suggestion had been made that the student be given opportunity to work with each reading group. Students were doing this in almost every classroom and this gave them several opportunities to teach guided oral reading lessons in a variety of ways.

The optional activities included activities in all of the language arts areas. Students worked with individual children who needed help in writing and spelling. They assisted small groups with the preparation of bulletin boards or interest corner displays. In general, students were involved in a wide range of learning activities.

Phase 4—total class instruction

Presentation of a book talk in which the student introduced several books by the same author or books grouped around one theme was the only required reading activity in which the student worked with a total classroom group. Under optional activities, selecting and sharing of poetry was suggested. In a second optional activity, students corrected a language arts assignment and analyzed pupil responses to determine which children needed additional teaching and practice. Students analyzed the work of the total group in this activity but actually worked with individuals or groups in the reteaching session.

Classroom teachers and college professors were agreed that those students who showed evidence of sufficient confidence and teaching ability to handle a large group should be given several opportunities to do so. For some of students, however, it seemed best

to defer experience at this level and depth until they were doing their student teaching and would be full participants in a total classroom program.

Advantages and disadvantages of the program

Placed in teaching situations in which the complexities of the classroom had to be faced head-on, students began to apply, evaluate, and question teaching principles and practices. Comments on the teacher aide reports were frankly revealing of what students saw as limitations in their pre-service preparation. In addition, the relatively free, nonevaluative conditions under which students were working in the classrooms made it comparatively easy for them to admit to failure and to examine unsuccessful lessons with objectivity. It was not uncommon for students, in analyzing a particular lesson which they had planned and taught, to pinpoint the specific point at which their own lack of understanding of what to teach or how to teach had undermined their effectiveness as teachers. The value of these insights into their own deficiencies lies in its timing: students were becoming sensitive to what it was that they needed to know at the very time when they were enrolled in courses designed to assist them in learning these things.

Students brought teacher-constructed materials and ideas to class; they returned to classrooms with alternative strategies and materials. The cross-fertilization of elementary and college classrooms and the sharing of mutual concerns by prospective teachers, in-service teachers, and education professors gave evidence of being stimulating and productive for all who were involved.

Asked to identify the major contribution of the experiences in the elementary classrooms to their professional preparation, many of the students were agreed that the personal in-

volvement with children and teachers revived their initial commitment to teaching and gave this particular semester of professional preparation a zest and vitality which they found exciting. This in itself seemed sufficient justification to continue the experimental semester.

Candid appraisal of the program by the faculty involved in the project and other interested professional persons brought three major criticisms to the fore: 1) the two mornings per week spent in the elementary classrooms lessened the time available to the student for study and preparation of course work assignments; 2) procedures seen in the classroom did not necessarily reflect the procedures recommended in the college methods courses; and 3) students were sometimes involved in teaching situations for which they were not prepared, for example, working with disabled readers when they were not competent to handle learning problems of this complexity.

These are valid criticisms. They cannot be disproved. What remains to be seen is the extent to which the stated criticisms can be ameliorated and whether the advantages of the total program outweigh these disadvantages. In the interests, however, lessening all three disadvantages, the following steps are now under consideration:

1. The amount of time spent in the elementary classroom when considered as a depletion of time available for study can best be justified by the extent to which it reinforces the methods courses. A more precise integration of required classroom activities with methods course assignment would be one means of increasing the reinforcement value. Careful consideration has to be given also to the amount of classroom experience from which maximum learning value can be realized. A distinction among students according to their need for either more or less of these experiences needs to be made.

2. The discrepancy between classroom practices and the procedures recom-

mended in teacher preparation courses has been documented as a nationwide failing. The potential impact of the teacher aide program on this problem lies in the establishment of a strong working bond between the methods professors and the classroom teachers, a bond which holds promise for utilizing the strengths of both the improvement of preservice teacher education. Such an alliance could well serve to improve the teaching practices of both the professor and the teacher. The strength of the support received from the participating schools and the generosity with which classroom teachers in the project gave of time and effort is concrete evidence of their willingness to be involved in the improvement of the preparation of new teachers.

What is needed here is workshop time in which professors and teachers can plan together their contributions to the preservice program, can bring into the open and attempt to resolve any differences in viewpoints, and can learn from each other. A preschool workshop of five to ten days buttressed by several Saturday sessions would set the stage for increased collaboration.

3. The desire of the classroom teacher to use some portion of the teacher aide's time in special assistance for the disabled reader is understandable. The problem was not one of justifying the participation of the student in this teaching situation but in the need for careful planning and direction of the student by the elementary teacher.

In one school, advanced graduate students majoring in the teaching of reading were asked to assist with the program. They instructed ten teacher aides in the use of a simplified diagnostic instrument, assisted each student in the evaluation and interpretation of the test results, demonstrated the use of materials directed toward the improvement of specific skills, and assisted with the supervision of the remedial sessions. Two graduate students worked with ten teacher aides. Whether this is an effective supplement to the undergraduate program remains to be seen, as well as the feasibility of doing it with 70 to 80 students. It appeared to be of value to the graduate students in that it fitted in very well with the practicum requirements for advanced students preparing for supervisory positions.

The acid test for this program lies in the teaching performance of these students once they are in their own classrooms. The need for valid and recognized means of evaluating teaching competencies remains critical. Evaluation is essential, however, if effective revisions in the program are to be made.

Summary

The integration of the methods courses with teacher aide experiences in local elementary classrooms is one part of Indiana University's experimental project, TEAM, Teacher Education through Applied Methods. A series of planned experiences leads the student into teaching situations of gradually increasing complexity and depth. The activities in the elementary classroom are integrated with the teaching principles and procedures presented in the methods courses which are taught concurrently. The increased sensitivity of the students to teaching and learning problems appears to have strong potential for improving the effectiveness of their preparation as teachers of reading.

The Use of Videotape Recorders in the Education of Reading Teachers

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THE USE of videotape records has been found to be an effective method of educating reading teachers. Through them a detailed study of individual teaching styles, teaching techniques common to all disciplines, and methods unique to reading instruction can be accomplished more effectively and more efficiently than by traditional methods of observation and evaluation.

For this reason, the use of videotape has become standard procedure for all teachers enrolled in the developmental reading practicum in the Experienced Teacher Fellowship Program in Reading at Clarke College.

Microteaching

In our reading practicum the videotape recorder is utilized for microteaching. This is a scaled-down teaching encounter: The teacher teaches very short lessons, five to ten minutes, to small groups of 4 to 6 students (1). Because the lessons are short, the teacher can teach, evaluate, and re-teach a number of lessons in a relatively short period of time. Reteaching can continue until the teacher demonstrates proficiency in the skill being considered.

During the microteaching exercises the teachers develop competence in using a number of technical teaching skills (1) which they are expected to utilize in classroom reading instruction. These skills can be employed in all content areas and at all grade levels including college teaching and are by no means unique to the teaching of reading. Their importance cannot be over emphasized. The technical teaching skills are concerned with the following areas of the teaching-learning act:

- Questioning
- Reinforcement
- Discussion
- Stimulus Variation
- Providing Feedback
- Recognizing Attending Behavior
- Establishing Set
- Achieving Closure
- Nonverbal Cues
- Control of Participation
- Obtaining Attending Behavior
- Use of Appropriate Frames of Reference

In addition to the technical teaching skills, a series of reading microlessons has been developed by the practicum supervisors. These brief lessons are concerned with the word analysis and comprehension skills normally taught

in developmental reading programs. Since knowledge of reading skills is vital, the teachers are required to demonstrate proficiency in teaching these lessons. The word analysis lessons were adapted primarily from lessons in teacher's manuals (2) and a reading methods text (4) while lessons in comprehension were designed in the areas suggested by Barrett in his taxonomy of cognitive and affective dimensions of reading comprehension (3).

It is with the reading lessons—the presenting of reading skills where most emphasis is placed by the supervisors. However, the technical teaching skills are also stressed because of their inherent role in effective teaching in all disciplines.

The microteaching ordinarily takes place during the first hour of the morning when most teachers hold their reading lessons. Children to be taught in the microlesson leave their classroom for the short period of the lesson. The students involved are seldom out of their classroom for more than eight minutes. During the one hour reading period two teachers are both able to teach and reteach at least one lesson.

The supervisor's role is one of a silent observer during the teaching and videotaping of a lesson. While viewing the playback, teacher and supervisor critique the teaching-learning interaction. If discussion or controversy arises over a segment of a lesson, that portion is viewed several times for clarification. While lessons are usually viewed and critiqued immediately, they can be stored and viewed at a later date. Since microteaching allows us to breakdown the act of teaching and the content of reading into more manageable segments and since we are working with experienced teachers in our practicum, we usually find the first reteaching to be adequate for achieving objectives of the lesson.

Simulation

An excellent way of introducing microteaching is through the use of simulated lessons. Here the teachers are asked to teach short lessons on some aspect of reading to their peers. All teachers are asked to experience both the teacher's role and the student's role in the simulation activities.

Since many teachers are somewhat uneasy during their initial videotaping, the simulated experiences with fellow teachers are found to be a reassuring means for introducing this method of evaluation. Supervisors are sensitive to reactions during the viewing of a teacher's first lesson since many teachers feel self-conscious and are often critical of their personal appearance on the television screen.

Classroom videotaping

The effectiveness of the microteaching is determined by the extent to which the technical teaching skills and the knowledge of essential reading skills are implemented in actual teaching situations.

After a teacher has gained proficiency in a number of the reading microlessons, he is videotaped while teaching a classroom reading lesson. The lesson may involve the whole class or a single reading group. Although teachers are encouraged to keep their lessons under twenty minutes, no rigid time limits are set. It is not desirable to videotape long lessons since the time can more efficiently be used to tape, view, and evaluate a number of shorter sequences.

We have found that the technical teaching skills and reading skills which are stressed in microteaching do transfer to classroom teaching. However, this cannot be assumed. The supervisors observe the teacher in classroom instruction as often as possible to insure teaching proficiency. If ineffective or inefficient teaching is witnessed, additional microteaching is required.

Videotape equipment

There are several videotape recorder models on the market whose price and portability make their application possible in training reading teachers. Models priced under \$1,500 are now available. The units used by Clarke College consist of a video recorder which uses half-inch tape, a video (TV) camera, a small television monitor, and a microphone. The tape, similar to audio tape, may be erased, or saved for later viewing. The units are stored and transported on 18 x 30 inch utility carts for easy movement. They are also portable enough to be moved easily from school to school.

Operation of the equipment is easily learned. It is even possible for a teacher to set up a unit, focus the camera on the teaching area, and then teach the lesson without the assistance of another person. Experience has shown, however, that teachers will present better lessons if they needn't be bothered with the mechanical aspects of the videotaping. For this reason our teachers work in teams when videotaping lessons.

Summary

Utilizing videotape recorders in the training of reading teachers is an excellent means of insuring proficiency in the skills necessary to provide competent reading instruction. Through simulated exercises, microteaching, and classroom instruction, videotape permits teachers to become personally involved in the evaluation and improvement of their teaching.

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The Use of Videotape With the Teacher Who Talks Too Much

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CLARKE COLLEGE is making extensive use of the videotape recorder in the campus Reading Center and is finding it particularly effective in pointing out that most teachers and especially beginning teachers do too much talking and thus seriously reduce the amount of communication which should take place in a classroom. The reading center, which provides diagnostic, corrective, remedial, and developmental services beginning in grade two and continuing through the college and adult levels, began using the videotape approach at the beginning of the 1967-68 school year. The program consists of a video camera, tape deck and TV monitor. The video camera is located in one room of the center and is never moved. The children thus become used to its presence and soon forget about it. The clinician or supervisor turns the camera on and proceeds with a lesson; there is no need for a technician to be present in the room. The image is then transmitted to another section of the center and recorded onto tape. When the session is completed the tape can be replayed over a monitor for evaluation by the clinician and supervisor. The image may also be transmitted directly through the monitor without being recorded onto the tape if the supervisor or clinician does not wish to use the tape at a later date. The clinician always knows a session is being taped or monitored. Tapes can be used approximately 400 times before replacement is necessary.

The need for pointing out to our cli-

nicians that they were spending too much time supplying the answers and too little time allowing the child to arrive at his own thoughtful reaction to the questions presented became quite obvious after one or two clinic sessions. The reading center staff realized that merely telling a teacher that he or she was guilty of this proved to have little technique reorientational value. Therefore the use of the videotape was decided upon as a somewhat novel way of making our clinicians aware of the problem. Not only would they be able to hear and see themselves but, more importantly, see the student react to them. Marshall McLuhan in his book, *The Medium Is the Message*, tells us that in television there occurs an extension of the sense of active, exploratory touch which involves all the senses simultaneously, rather than that of sight alone. You have to be with it. McLuhan points out that television demands participation and involvement in depth of the whole being. It will not work as a background. Our clinicians certainly found, when replaying a session, that they became much more involved in the child and heartily agreed with McLuhan's statement that television engages you.

Let us visit a clinician at work and perhaps the problem will be made even more clear. Miss B., an experienced teacher, graduate student, is working with a third grade girl who is still experiencing difficulty with vowels. The clinician is teaching the sound of short *a*. The visual presentation of known words has taken place, the child has been told there is just one vowel in each word, she has named the vowel and noted the location of it. After additional teaching Miss B. is now ready to teach the generation. What does she do? Instead of allowing the child to figure out that the sound of *a* is what the clinician tells her. How

much better it would have been to have the child state the generalization. How much more meaningful to have had the child become involved; the discovery of the generalization would have been hers, not the teachers.

We suspected the same thing was probably happening in regular classrooms. Therefore, a visit was arranged to one of the better schools in the city. We visited a sixth grade classroom teacher who was building background and interest prior to reading a story about the eruption of the volcano which ultimately buried the city of Pompeii. The teacher spent the entire time telling the students about volcanos, talking about similar volcanos in Hawaii, stating *his* reaction to the pictures in the text. Not once did he attempt to find out what his students knew about the city of Pompeii. Not once did the students become involved in building background and interest. The teacher did a fine job but it was the teacher not the students, who really became interested in the story. Is it too much to expect a group of sixth graders to know something about this subject? I think not.

We also visited a third grade classroom in this same school. This teacher had just finished a silent guided reading lesson. She previously had established purposes for silent reading but now is neglecting to allow the students to discuss what they had read based on the established purposes. The children sit and listen to the teacher explain why it was dangerous for Jean and John to stray too far from the spaceship. Many of the children are a thousand miles away. They sit and nod their heads like robots. This teacher can't possibly do an efficient job of teaching comprehension skills if she supplies the answers to her own questions.

The teachers in the classrooms

which were visited, like their counterparts in the reading center, did not realize they were doing most of the talking and supplying too many answers.

Once the problem was recognized and accepted by reading center clinicians, a concentrated effort through the use of videotapes and staffing sessions which were held weekly began to have good results. One technique employed to remedy the problem of the overly loquacious teacher was that developed by the School of Education at Stanford University. The technique is called microteaching. Simply defined by the Stanford staff, microteaching is basically a scaled-down teaching situation. The teacher teaches small numbers of students for short periods of time varying between 5 and 20 minutes. The purpose of microteaching is to give the teacher an opportunity to practice and perfect certain teaching skills under closely supervised conditions. In the Clarke center the problem was to perfect the skill of knowing when not to talk. Clinicians would present a lesson, analyze it, and then reteach until perfected. Another technique employed is that of simulation. A problem of a teacher doing too much talking would be visually presented on the TV monitor. The clinicians would then react to the simulated experience and tell how they would improve the lesson.

Why do teachers fall into the trap of too much talking? The answers to this question appear to be as varied as they are interesting. Is this a fault of our teacher training institutions? Have our teachers of today been overexposed to the lecture type atmosphere which permeates many university classrooms? Have they been conditioned into believing the only way to teach something is to stand in front of a room and lecture? Talk their students to death? Much has been writ-

ten about the need for discussion type classes but it is my feeling that we are only paying lip service. Do we really encourage critical thinking on the college level or does the student feel that if a teacher or textbook says that a statement is true then it is true, and no pupil dares think otherwise? If this is the case, then education from authority must give way to education from reason.

Perhaps the reason for the problem is one of image. Do we have such a distorted picture of ourselves as teachers that we feel in order to protect the image we must do all the talking and thinking? We are king in our classroom and we must never for one moment allow the student to think otherwise. We must supply the answers to prove to the student that we are all knowing.

Or is the answer the one that always seems to be given when we really don't know the answer? I just don't have the time; there is so much to cover. I can't spend precious minutes waiting for a child to come up with the answer.

This writer does not know what the answer is. Perhaps it is a combination of these and many other factors. The important thing is to take a good look at yourself and find out if perhaps you are guilty. You don't need a videotape recorder. The next time you step into a classroom put a tape recorder in a central location, turn it on and forget it. Sometime later sit down and listen and ask yourself: Did I do too much talking? Am I relying on one or two articulate students in my classroom for all the answers? The results may be interesting. We often hear the complaint that our children do not listen and are unable to evaluate what they have read. And yet, why should children do these things if they know the teacher will supply the right answer and think critically for them?

The University's Responsibility in Improving Public School Reading Programs

DAVID E. BEAR
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UNIVERSITIES traditionally have been concerned with improving the quality of living in the communities they serv \bar{e} . Colleges of education throughout the years have cooperated with the improvement of educational programs. The extent of this cooperation which might have been sufficient for the recent past is no longer adequate to serve the educational needs of our present society. Schools today are faced with the problem of helping each child develop literacy at a level sufficient for him to earn a livelihood, and to become a responsible citizen in a highly complex society.

The rapid rate of scientific, technological, and sociological change has brought unprecedented demands for a change in our educational outlook. Jobs in industry, business, government, and most other agencies of society have become highly specialized. New jobs are being created rapidly and others are becoming obsolete thus creating a need for on-the-job training and retraining. Most industries today maintain educational programs to train workers for entry jobs, to upgrade skills, and to retrain workers for new jobs.

Educators today are also facing the problems of specialization. Teachers who have been teaching for many years have suddenly found that new understandings and skills are needed to deal effectively with the many new demands being made upon them. Administrators and supervisors dealing with the various federally supported educational programs have encountered difficulty in locating specialists to carry out these programs.

The increasing demands for change in our educational programs for children have made us aware that the education of teachers must be an ongoing process. Whereas teacher education traditionally has been the responsibility of colleges and universities, we recognize that in the future this responsibility must be shared with the public schools. Harold Howe II in an address to the annual meeting of the department of elementary principals in Houston in April 1968, stated that the new principal, in addition to many other duties, will take on the duty of director of a teacher training institution because each elementary school has the potential for developing and changing teaching skills. He further stated:

Traditionally, the elementary school is thought of as a place where future teachers can come from the universities to do their practice teaching. But it has a much broader role as a staff-development institution. In fact, I would say it must become a "self-renewing" enterprise, training and retraining a variety of educational personnel for its own staff and for service in the many other elements of education, including the operation of government-sponsored programs.

If teacher education is to become a career-long process, then we need to determine the various responsibilities of the universities and the public schools in this endeavor. There are no easy answers to this problem, but whatever the solutions, I am convinced that they will be found in a real working partnership between these two agencies.

In exploring ways that the universities may assist the public schools, I find that most of the ideas are not new, but are now operational in various degrees in some institutions. They may, with some logic, be viewed in three broad categories: 1) preservice, 2) inservice, and 3) graduate.

Preservice education

The quality of the university's undergraduate program in teacher educa-

tion determines, to a great extent, the effectiveness of its graduates in the teaching of reading. Mary Austin and Coleman Morrison in the *First R* point out many of the shortcomings in our undergraduate programs. Present programs consist mainly of a collection of courses with little attention to the behaviors and skills needed to become an effective reading teacher.

The university should, in the future, provide the prospective teacher in the undergraduate program with frequent contacts with pupils. These contacts should begin in the freshman and sophomore years and should include experiences in tutoring, in serving as teacher aides, and in classroom observation. These contacts should precede the student teaching experience which normally comes in the senior year.

The student teaching experience should culminate the student's professional education, and should be completed under the supervision of a master teacher. Few universities, at present, are devoting to this program the resources that it merits. A well-supervised student teaching program carried on in the public schools can make a significant contribution to the improvement of reading. A student teacher often provides intellectual stimulation to the critic teacher causing her to become more acceptable to new approaches. In addition, the clinical professor can make available to both the student teacher and the critic teacher many of the recent innovations in teacher education. Experiences with videotaping, closed circuit TV, and simulation are examples.

In-service education

The point has been made that the public schools must become involved in teacher education and assume most of the burden for upgrading and retraining of professional personnel. How can the university cooperate in assisting with this on-the-job training?

Several points which follow have been found useful in some university communities.

Consultant service. Universities can make available the services of professors in reading to serve as resource persons, speakers, workshop directors, or as general consultants to the reading program. Many of the federally supported programs in education, especially under Title I, have increased reading services for children in the public schools. To develop these new programs many schools sought consultant services from the universities which were most helpful in developing their projects. Other school districts could have avoided developing ill-conceived programs by this kind of university involvement.

Each university should develop a policy statement concerning the scheduling of consultant help, the assignment of faculty members, and the financial arrangements for the services of its staff.

Extension services. The university can conduct off campus courses in reading when a school district or several adjoining districts request it. These offerings should be workshops directed toward meeting the needs of the district.

Reading Center services. The university should maintain a well-equipped reading center for use in its graduate and undergraduate programs, but which may also be used by the public school teachers as sources of information about materials and methodology.

Reading conferences and workshops. The university may disseminate information to teachers in-service by carefully planned conferences and workshops developed around pertinent problems of interest to teachers. Much professional stimulation can be developed by bringing to the campus speakers who have a national or international reputation.

Seminar of reading specialists.

Since leadership for the improvement of reading must come from reading specialists in the schools, the university can take the initiative by holding frequent seminars for this select group. These highly specialized persons could deal with reading problems in greater depth than persons with less training. An example of this is an alumni association of graduates from the reading specialists program at the Edwardsville Campus of Southern Illinois University. This group meets four times per year both on and off campus. The majority of the persons in this group are reading specialists in the local schools. A still different approach is being made to bring together at this university all persons from the Greater St. Louis Area who are in the following categories: professors of reading, presidents and presidents-elect of the three IRA Councils, directors of reading clinics, and directors of reading programs. The purpose of the latter group is to coordinate efforts and to understand what others are doing.

Support state and local IRA Councils. IRA councils represent voluntary associations of teachers who are interested in professional growth in reading. University personnel should participate in organizing new councils where needed, and support the activities of those already existing in the area served by the university.

Analyze professional literature and research. Analyze professional literature and research for the schools to separate the fads of extremists from proposals that are sound; especially to identify those activities which appear worthy of serious consideration by school personnel, with a view toward implementation.

Evaluation of new materials and techniques. An evaluation of new materials and techniques can be brought to the attention of area schools through periodic publishing of a newsletter.

Graduate programs

A graduate program, oriented toward the needs of professional workers in the public schools, is very important in the improvement of reading. A majority of the graduate students in education at the predoctoral level are teachers and administrators in the public schools; therefore it would appear that much greater attention should be directed toward the needs of this group. Many universities do an adequate job of meeting these needs at the master's degree level, but beyond this program the emphasis immediately shifts to the doctoral program which is directed toward the development of future professors or researchers, not public school practitioners.

Real progress in improving reading programs in our schools will not come about until there are many more highly trained reading specialists in leadership positions. For the most part, leadership in reading in the public schools has come from superintendents, principals, and general supervisors who have had little training in this area. It is in this area that the university can best serve the public schools by establishing graduate programs at the master's and specialist's degree level to train these needed specialists. Minimum standards for reading specialists have already been established by the International Reading Association. These standards can be used as guidelines for the development of specialist's degree programs.

Graduate programs which will provide the prospective reading specialist with the necessary in depth training will require at least one year of work beyond the master's degree. Many universities offer a sixth-year program; some have accorded the program degree status, while others term it a specialist's certificate. These specialist programs differ from doctoral programs in that they are less research

oriented and directed more toward developing a specialty for use in a public school setting.

The specialist programs often become neglected in universities that offer both the specialist and the doctorate. Too often the specialist certificate or degree becomes the program of those candidates who have found the doctoral program too rigorous. Also, professors at the university level feel more prestige in working in a doctoral program and getting involved in research related to the work of doctoral candidates. Professors are also under pressure to publish and conduct research in the constant struggle for advancement in rank. These are problems that the universities must solve if the efforts of professors are to be directed toward service oriented programs.

Universities that desire to play a greater role in improving public education would do well to reconsider their priorities in graduate education and place greater emphasis on the specialist program. These programs are much less expensive than doctoral programs: thus, the amount of money available would service many more students, and provide the public schools with a source of highly qualified personnel in reading who in turn could provide the badly needed leadership for the improvement of reading programs.

To pursue a specialist program in reading, the candidate should build upon the course work in reading and related areas in the master's program. The program should represent at least two years of graduate study with major emphasis in the area of specialization.

In conclusion, the universities and the public schools must become involved in a genuine working partnership to provide continuous education for members of the profession. If the universities do not become more involved, they will lose a real opportunity

for service at a most crucial time in history. The university must establish a stimulating intellectual environment that will involve the members of the teaching profession in their own continuous educational progress.

College and School Field Experiences in Reading

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THE TEACHING OF READING on the college level has frequently been likened to teaching swimming without benefit of a pool or water. School administrators complain because teachers are inadequately prepared for a classroom situation, while education students and new teachers counter that they have had no opportunity to train in a classroom situation before college graduation.

What have colleges and school districts done about this? In general, very little except find fault with each other. So the situation stands—theory is taught in the ivory towers, practice is acquired at the grass roots (often by painful trial and error), and an unbridgeable gap remains between the two.

Eight years ago, the Bellevue School District and Central Washington State College became concerned about this situation and joined forces in an effort to give the classroom teacher more depth and understanding of the total reading area—remedial, developmental, and reading as it relates to the subject areas.

To do this, the Bellevue School District met with the staff of Central Washington State College and established the following objectives for the

improvement of the teaching of reading:

1. To give the classroom teacher first hand experience in good classroom diagnostic techniques and procedures
2. To use these procedures to plan lessons that would meet the individual needs of children with a wide range of reading abilities
3. To acquaint the classroom teacher with resources, methods, and materials to meet the interests, levels, and unique personalities of children
4. To prepare teachers to interpret various standardized evaluative instruments and construct, administer, and interpret informal inventories
5. To create an awareness of current issues, innovations, and research that have an impact on the teaching of reading

To implement these objectives, the Bellevue Schools invited children who manifested reading problems to participate in the program and employed a group of interested, successful, and well-qualified master teachers (screened by the reading coordinator with the help of building principals), as staff teachers. Teachers who were interested in improving their teaching of reading enrolled for credit with Central Washington State College and, in groups of five, worked under close supervision of staff teachers.

Three years ago a new dimension was added. The reading coordinator and college consultant saw a need for new teachers coming into the district to have more orientation and practical experience beyond the student teaching and two basic courses in reading.

To do this, Bellevue established and now offers an opportunity for teachers new to the district to bridge the gap from the comfortable halls of theory, to the rolling up of sleeves and practicing in a realistic setting. To accomplish this, again, well-qualified master teachers were employed to guide, demonstrate, and instruct the beginner. However, mere practice can often result in superficial imitating. To avoid this, carefully planned seminars were conducted every afternoon during the

four-week orientation program. During the seminars, the neophytes were introduced to the various reading techniques, innovations, resources, materials, and research with emphasis on how practice is based on sound theory. For these seminars, specialists were invited to participate; experts from various disciplines and professions came from all parts of the United States to share knowledge with the beginner.

The district's subject area coordinators, (reading, social studies, mathematics, science, conservation education), music, art, and physical education), were involved in classroom demonstrations with emphasis on reading as it related to their particular field.

A schedule of a typical day was as follows:

- 8:00- 8:30 New teachers met with staff teacher to go over daily plans. Emphasis was on carefully planned objectives and a structure from which to operate.
- 8:30- 9:15 Staff teacher demonstrated a reading lesson, emphasizing a particular reading skill, showing the new teacher how to reach the many individual differences that may be found within the classroom setting.
- 9:15-10:15 New teachers worked with pupils, continuing the lesson planned with staff teacher who closely supervised and made an analysis of the lesson.
- 10:15-10:30 A physical education program was carried out—using the Bellevue Physical Education Activities and particular methods that are currently being used in perceptual motor training program.
- 10:30-11:30 Reading as it is related to content areas. Demonstrated skills necessary and activities that can be used to enhance children's needs and desires to read. Children dismissed.
- 11:30- 1:00 A lunch period spent in classrooms where informal discussions were conducted—staff teacher and resource people were participants.
- 1:00- 3:00 Afternoon seminars were

conducted. Students and specialists were participants.
 3:00- 4:00 Staff teachers met with coordinators to discuss, review, and answer questions concerning particular areas and to share experiences and knowledge.

Many field trips were taken to acquaint children and teachers with the community resources that are available. One example of this was a field trip planned by the conservation education coordinator to the King County watersheds. The King County water department director and staff were guides during the trip. The entire staff with all youngsters participating in the program, spent an entire day learning about the source, importance, and care of water in this area. The culminating activities were many and varied. Children learned to read the environment around them, as well as books. They learned to put their knowledge and feelings on paper, thus sharing them with others.

This program was conducted at one twenty-two room elementary school where rooms were both traditional and in open clusters suitable for team teaching. Grades represented were kindergarten through ninth.

Finances for the program were handled through Title I; \$50,000 was the total cost of the program. Staff teachers were paid \$800 a month and the training teachers received \$370. An amount of \$50 was paid by teachers who received eight credits for completion of the course.

The college consultant and district coordinator worked closely together to plan meaningful experiences for the beginning teachers. They helped the staff teachers when necessary, gave focus and leadership to the seminars, and evaluated the total program. As a result of this close cooperation, the school district and college have a better understanding of each other and

are planning to improve courses in reading and in-service training.

After the first year, we instituted a fall in-service course in which the areas relating to reading were studied in depth following the introduction of the classroom experience. Some topics of concern were as follows:

- Speech and hearing and their relationship to reading
- Special education for students manifesting severe problems
- Guidance services
- Reporting practices
- The gifted child
- Community agencies
- Medical help
- Diagnostic help

Special opportunities were made available to participate in and understand the dynamics of parent-teacher relationships.

Specific aspects of reading were presented to add depth to the program. Each session devoted some time to voicing and discussing the first-year teacher's concerns with her first independent classroom experience. After the program, each teacher was asked to write an evaluation of the program. A typical comment follows:

This program has been most beneficial to me. It has given me an opportunity to explore new areas and obtain new insights. As a secondary teacher, the presentation on primary procedures were most helpful. I appreciated having the example of a good, effective, dynamic teacher. To think I was paid for this, too.

Another significant comment was that the experience gave the new teacher a much needed feeling of belonging—a position in a profession, a feeling that she was not alone but a responsible and important member of a total school system. The rapport developed was carried into the school faculty and knowledge was shared and respected by others.

The comments of reading specialists

were most encouraging. They found that the beginner, in starting her first year of teaching, had confidence and knowledge. There was less clutching of the text and round robin reading. She realized that reading was not confined to 45 minutes but taught throughout the school day.

Evaluation of children's reading growth was measured by standardized tests. These demonstrated that each child had made significant growth in skill and also revealed a change in the attitude toward reading, they developed a greater ability to use reading to gain information.

Many children, after having been involved in the program one year, asked to be included again.

Principals have made an interesting comment concerning the program. They have found that new teachers, having had the special training, are often better prepared than many members of the existing staff. Their responsibilities were lessened because the new staff members were able to become effective faculty members at a much earlier date and could establish classroom management and procedures with little help.

The principals found that, because the new-comers had had the special training, their perception of the child and the reading process was increased. They realize and incorporate in their teaching not the grade and the book, but the program in terms of the individuals in the classroom.

Roy Ruebel stated, "Although primary gain may accrue to the school district, the college has profited by the experience of having its faculty work in this modern education laboratory. Any college hoping to be on the leading edge of teacher education must have such public school cooperation. Without it, faculty interest diminishes, beginning teachers are less well prepared, and schools deteriorate."

The program, thus far, has been

successful in a practical way. What about the future? Where are we going from here? This program will be repeated now that college-school relationships have been established. To project into the future, we need to perceive reading instruction in a changing world. Nila Lanton Smith states it as follows:

Indications of reading change may be found in the emerging trends of our rapidly moving civilization as a whole. The winds of change are blowing with hurricane force, uprooting established tradition, sweeping away old practices, opening up new pathways. Reading is so intrinsically interwoven with life's activities and currents of thinking that it reciprocally reflects the larger trends in life itself. So this attempted prediction of things to come in reading is based upon an examination of evolving trends in our changing civilization.

Together, we are looking at the changes that need to take place for a more effective teaching of reading. At present, we are concentrating on prevention rather than on remediation. The key to the issue seems to be a well-prepared enthusiastic teacher who concerns herself with sequential child development, sequential skill development, and the cognitive learning that takes place. To do the most effective job, this teacher needs to be aware of the many resource people available to assist her when necessary.

More and more, we are looking to the reading specialist to help the classroom teacher. The reading specialist will need to be well-trained in order to implement new trends and innovative practices in classroom procedures. Thus, our next step in college-school programs is a course specifically designed to give guidance and direction to persons assuming the specialist role. This course will enable the specialist, in training, to prepare demonstrations, use new media effectively, help teachers construct guidelines and syllabi, become acquainted with new techniques of analysis (e.g., Flanders' *Verbal Interaction Analysis—Micro and*

Mirror Teaching), and learn procedures needed for action research.

Further study will be made in new organizational patterns, group dynamics, sensitivity training, and evaluative techniques used to assess and pinpoint behavioral changes in children's reading. This background should give the specialist an opportunity not only to be knowledgeable in reading, but to help the teacher see her changing role in the school today—from one of dominating the classroom to one of being an observer and guide. The new teacher must be willing to recognize that many tasks can be delegated to others; that children learn in a climate of participation and involvement. She should be primarily a resource and catalyst in the teaching process.

We are in need of a course designed to help teachers change, not only to accept, but understand and use the changing materials and media; not only to be aware of new theoretical framework, but be able to put it to use in a practical way. The Bellevue School District and Central Washington State College have laid some of the groundwork for this kind of teacher training.

Most educators will agree that regardless of the method or approach to learning, the essence of motivation instilled in children is supplied by a creative, imaginative, well-trained teacher. In this lies the upgrading of our education system.

New Media for Educating Teachers of Reading

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THERE IS A NEED FOR A CHANGE.
Professionals in the field of reading

have been warned: The evidence accumulating from research and experience in the field clearly indicates that many teachers are not properly matching children's instructional needs with reading instructional materials.

Why is this true? Are teachers uninformed or out-of-date? Is something missing in their basic training? Possibly.

Teaching a reading methods course to undergraduates is a very frustrating experience. It is extremely difficult to communicate with undergraduate students about the problems of teaching reading because they have so little background experience with children and even less with attempting to teach children. Comprehension through reading requires prior experience with the topic; so does comprehension in listening. The college students' personal experiences provide backgrounds of little value (they learned to read 14 to 16 years ago). This is especially true of those who learned to read easily. In a sense they have had less experience in learning to read. Children who were retarded readers have had more instruction in reading and have spent more time in the mastery of reading skills, though they have had less success. They probably understand the process of learning to read much better than do very adequate readers. And which group is most apt to go into teaching?

In undergraduate study this problem of limited background is not solved by observations of a master teacher at work in her classroom. The students often miss important phases of the guided reading lesson because they are not certain what they need to learn or expect to see. They will leave an observation experience insisting that the teacher did not go through the steps described by the college instructor. Undergraduate students need supervised experience with children. This is not feasible. What substitutes are

available? It is possible to simulate the sight and sounds of children reading aloud with readily available educational media.

But wait. This problem of matching instructional reading needs and learning materials is not limited to new and inexperienced teachers. It occurs in classrooms of teachers who have taught five, ten, or twenty-five years with no apparent relationship to teacher experience. More significantly, it occurs in the rooms of teachers who can recite accurately the commonly accepted criteria of independent, instructional, and frustration reading performance levels. The problem is a lack of application of knowledge. Why can't teachers successfully apply what they know? Millsap's (1) data gave a clear indication that teachers knew how to teach reading and that many of them did not recognize or accurately interpret instructional reading level performance.

The problem breaks down into two separate questions: 1) How do you develop teachers who recognize and interpret instructional level reading performance? and 2) How do you develop teachers who can design instructional materials directed specifically to certain instructional needs? The traditional text-lecture approach to preservice and in-service training is not an adequate answer to these questions. This is the approach to teacher training that has fostered the situation. Media, especially films and tapes, can help to prevent this problem.

Diagnostic teaching is a precise teacher response to a child's specific instructional need. It is a specific reading instructional program for each child; it is not just putting a child through a given instructional program. Teachers often employ this latter practice because they are uncertain about their ability to analyze a child's reading performance. These teachers lack skill in the use of diagnostic techniques

even though they have acquired considerable knowledge about diagnostic techniques by studying texts, test manuals, listening to lectures, and watching demonstrations of individual diagnostic testing procedures. This lack of confidence in their ability to use and interpret diagnostic reading techniques is the first problem to be overcome. Teachers must acquire certain skills before they can transform knowledge into classroom practice.

Developing diagnostic skills

An evaluation of the circumstances under which teachers must do diagnostic testing points to the informal reading inventory as the most realistic technique to be learned. Classroom teachers do not have the time necessary to administer standardized diagnostic reading tests. The less structured and more adaptable testing procedures of an informal reading inventory—evaluating children against realistic standards—provides practical answers to questions about each child's instructional needs within a teacher's room. Finally, the informal test is easier to master than standardized tests which analyze reading disabilities. To give an IRI, preservice and in-service teachers must master a series of skills:

- 1 Master a code for recording an oral reading performance
- 2 Possess advanced skill in auditory discrimination and memory
- 3 Possess skill in observing physical symptoms of tension during reading
- 4 Possess skill in the interpretation of the total reading performance at instructional level

Teachers need a procedure for making a record of a child's oral reading performance, a code system of symbols which designate certain oral reading errors. Teachers must memorize this code to make consistent analysis possible. Mastery of the code is the first step in developing skill in the analysis of an oral reading performance.

Mastery of encoding is a second step. This code does not become a useful tool unless adequate skill in its use has been developed. Many teachers can remember the symbols of a code but they cannot use them fast enough to make a record of a reading performance. They need practice in using the code.

Practicing the code

Practicing the code can be done without children. Other methods are available. The instructor can use readily available educational media to good advantage. Tape recordings can be made of children reading orally. A carefully designed series of tapes can be edited to present a number of different types of achievement, children reading at different levels, and exhibiting different reading problems. The teacher has an unmarked copy of the material to be read, listens to the taped reading, and using the code makes a record of the reading performance. The teachers can have unlimited practice in use of the code in easily arranged sessions. Accuracy in the teacher's use of the code can be verified through the use of correctly coded keys, usually transparencies for overhead projection, which have been developed by the instructor. Not only is the teacher able to check her proficiency in use of the code, but also she can study a visual model of the desired end-product.

Auditory discrimination skills

Correct use of the code is based on accurate auditory discrimination. This is especially necessary if the child makes subtle errors in the use of phonics or slight mispronunciations of prefixes or suffixes. Because a child may interpret a request to repeat as a need to change, the teacher must be aware of all errors when they occur. The teacher requires guided practice in concentration on errors to develop this

skill while listening to an oral reading performance. Extensive practice through listening to tapes also fosters the development of an adequate auditory memory. Auditory memory is absolutely necessary because many children continue to read rapidly even though they are making numerous word recognition errors. Auditory memory should be developed to the point that the teacher can continue to make a record of errors for no less than half a minute after the child has finished reading. The teacher can develop skills to the necessary level of proficiency by using auditory tapes in either group or individual instructional situations. Responding to tapes does something that cannot be done through lecture in class; it develops necessary skills.

The instructor begins training skill in observing physical symptoms of tension during reading when ease and accuracy in handling the skills of auditory discrimination and memory are achieved. He uses 16 mm sound films or videotapes for this work. These films are very simple; they are simply shots taken while children are reading orally as though the camera were the examiner. This view allows observation of facial expressions and the hands and upper body of the child. The teacher is instructed to note the onset of some atypical facial expression or physical behavior; a pronounced frown, squinting, head tilting, or hands that begin to fumble nervously with the book pages, or drum on a desk top.

Observing visual cues

The observation of physical behavior during oral reading is important because some children will show such symptoms of anxiety about their reading before there is any significant decrement in their performance. These impressions, however subjective, are valuable aids in the evaluation of a child's reading performance. *It is*

mandatory that the child be comfortable while working at instructional level.

The films and videotapes simulate children as they perform during testing. By requiring a teacher response to these media the instructor forces concentration on the skill to be learned and the teachers become active members of the teaching-learning process. The media supplement the class lecture and provide for skills to develop enough for a teacher to apply her knowledge.

The final phase of training teachers to use the informal reading inventory combines the previously developed skills, accurate code use, accurate auditory discrimination and memory skills, and accurate noting of symptoms of anxiety during reading. For this the teacher views a film or videotape, without detailed guidance from the instructor, and records the oral reading performance and notes any significant symptoms of tension. The instructor checks her results. She should have correctly indicated the general level at which the child should receive developmental reading instruction—instructional level, and the level at which books to be read for pleasure or information should be selected—independent level, and the child's instructional needs. If the teacher cannot meet these performance criteria, she continues working with the simulation materials until she can.

Practicing with children

The instructor now shifts from the development of teacher skills to teacher self-confidence in the use of diagnostic techniques. The teachers must try their hand. They must practice their new learnings and skills by working with children. The instructor has brought the teachers to this point more rapidly and effectively through the use of media, as supplements to the lecture and text. The teachers are

ly to assume responsibility for the

analysis of an oral reading performance working under close supervision of the instructor. The instructor's presence offers support and guidance. He gives additional support and guidance in critique sessions after the children have been dismissed. The teacher assumes this new responsibility of analyzing reading performance knowing that no mistake on her part will pass unnoticed and result in harm to the child because help is available if it is needed. This guided practicum step closes the gap between theory and practice. Simulation activities developed the readiness for this final stage through the carefully planned use of media—tapes, transparencies, and films. Media aid significantly, increasing the skill growth of the teachers and shortening the time needed for practice and skill development work with children.

Training teachers to elicit and interpret instructional level reading performance is accomplished through their mastery of the informal reading inventory. One of the by-products of learning a code to record reading errors is that it focuses the teacher's attention on reading disabilities exhibited during testing. "At instructional level what word recognition errors did Mark show most often?" This is a question the teacher can now answer. "He substituted *hat* for *hate* and *rat* for *rate*. He exhibits substitutions most often at instructional level."

Mark's performance raises another question. Does he not have mastery of the word attack skills necessary to successfully attack the two words he did not recognize or did his skill development simply fail to function during the testing? How can we find out?

Diagnostic teaching would not attempt to solve the problem by directly teaching *hate* and *rate*, the unrecognized words. Such an approach would not help Mark solve his problem another time. What skill failed to func-

tion? This is the problem that must be solved.

We will assume because of his general reading achievement that *hat* and *rat* are part of Mark's sight vocabulary, that there is no problem with the sounds of the initial consonants *h* and *r* because he knows *hat* and *rat*, and that he does not know *ate* as a sound unit. One reasonable conclusion is that Mark failed to apply the silent *e* rule, which has been taught, in his efforts to attack *hate* and *rate*.

An informal instructional inventory

The teacher will construct an informal instructional inventory to answer the questions posed by Mark's performance. Its purpose is to determine what each child needs to be taught. Such an inventory is inexpensive and can be used whenever the teacher wishes. It is directly related to the specific reading abilities being developed in the teacher's instructional program and it can be used with any teaching approach. It contains two parts, an exercise and an adequate response. In the exercise the child must use a specific reading ability. The purpose of the adequate response section is to identify if the child's answers are correct. A correct answer is interpreted as indicating that a child possesses the specific reading ability the instructional inventory tested and so needs no further instruction on that skill. Some inventories are administered to individual children and require an oral response; others require a written response and can be administered to groups of children.

To check the assumption that Mark knows *rat* and *hat*, the teacher writes the words "See the rat" on a card and says, "This says, 'See the . . . ' You read the entire sentence." Mark's first answer is "See the rat." He repeats the assignment with *hat* and thus verifies that he knows *hat* and *rat*. Mark

ate and asked, "What does this say?"

To determine whether Mark lacks skill with the silent *e* rule or whether this skill failed to function during the testing, a similar procedure is followed. Mark fails to pronounce *hate* and *rate*; he says nothing. He does not recognize the words. The teacher writes the words "This word is rat; this word is rate" on a card and says, "This says, 'This word is rat; this word is . . . ' You read the entire sentence." Mark is unable to do so and repeats the performance with *hat* and *hate*. The most probable conclusion is that he has not mastered the silent *e* rule.

The teacher has identified a specific instructional need. She can now teach the rule in a manner consistent with her teaching method. She is free to evaluate Mark's learning whenever she thinks it is necessary to guide her further teaching.

Sometimes mastery of a reading ability can be tested through a written response. For example, the mastery of the phonic concept that is employed in spelling, such as the generalization that when words end with a *y* preceded by a consonant, the *y* is changed to *i* when the suffix *es*, *er*, or *est* is added, can be presented in written form. In this case the informal instructional inventory would be a worksheet containing a list of words ending with the above suffixes and the children would be instructed to write the root word after each key word.

The key to the success of the informal instructional inventory is that it must measure only one reading ability. Interpretation is never clouded by the fact that two or more skills are required in order to respond correctly. Failure to respond correctly means that teaching, or reteaching, of the skill is necessary.

Educational media can be used successfully in training teachers to admin-

ister and design the informal instructional inventory by simulating the behavior of children. Films and videotapes can be used to teach those individually administered tests where the children respond orally. Completed worksheets with the written responses of several children can be developed by the instructor for those tests that are administered to groups of children. These are distributed to the teachers who study them and complete the record of performance and the interpretation of performance forms which are the adequate response parts of the instructional inventory. On the record of performance form the teachers compare the responses of each child with the list of correct responses and notes the percentage of correct responses achieved. On the interpretation of performance form the teachers apply the criterion of successful performance, 70 percent correct, for example, and lists the names of those children who did not meet the criterion. The interpretation is that these are the children who need more instruction in the single reading skill tested by the instructional inventory (2). Transparencies of these two forms, correctly completed, can be used to guide the teachers by providing a visual example of the desired teacher skill development. Using these media, which require active teacher participation and response, serves to develop teacher skills in a manner which cannot be accomplished through the lecture alone.

Advantage of media

There are several advantages in using media to prepare teachers to use the informal reading inventory or other diagnostic techniques. The major reason is that these simulation materials do something that cannot be done through lecture alone; they develop necessary teacher skills. Media force teachers to be active and alert learners. The teachers are active par-

ticipants in the teaching-learning process because they know they must make a response to an audio tape or film. Learning is more rapid and effective and retention is greater. Media which simulate the behavior of children can be used effectively whenever teacher response to student performance is being developed.

Chance behavior that comes with using children for demonstrations and practice is eliminated. The instructor knows in advance what stimuli will be presented. The instructor can structure the lesson preparing the teachers for what they will hear and see. He can use each piece of instructional media for a specific purpose. He knows what teacher behavior to expect after each phase of the instructional program and can test whether the teachers have learned. Repeated experience with the same materials enables him to anticipate questions and allows him to prepare clearer and more adequate answers. With a clear-cut structure to each phase of the learning program the instructor is able to judge what teachers have learned and can repeat stimuli or present new material based upon teacher response. His teaching is more efficient and effective.

Carefully prepared simulation materials offer a training environment that is nearly identical to the regular classroom where the teacher will be doing her work. This factor significantly aids the transfer of these newly achieved understandings and skills to the teacher's classroom. The teacher will have few questions about how to organize her diagnostic testing and teaching activities because she is confident of her ability to systematically analyze the reading achievement and specific instructional needs of each child.

Simulation can be used without limitations on the size of the audience; it is effective for stimulating both group and individual learning. It is always available. Less time is spent in ar-

ranging for children to be transported to a specific place at a specific time, a consideration which is no small item to a busy college instructor or director of a district's in-service training program. Children on tape never get frightened or sick at the last minute. Their voices are audible. Naive children are left available for the final phase of the training program instead of test-wise guinea pigs.

Properly structured, many of the practice sessions necessary for skill development can take place outside of the lecture classroom. A recognition of individual differences would indicate a need for a variety in length of many of the practice sessions; some teachers will master the skills of auditory discrimination and memory faster than their colleagues. Many of the simulation materials can be made available to the teachers at the AV center. They can spend as much time as they need with an audiotape.

The simulation materials employed by the instructor in his classroom will be for purposes of evaluating teacher learnings. He will not be using valuable group class time for lengthy practice sessions.

Teachers must apply what they know. Confidence in their own ability to analyze an oral reading performance must be established before they will do this work successfully in their own classrooms. Diagnostic teaching is possible only if there is an accurate analysis of individual instructional needs.

There is a partial substitute to working directly with children in developing these analytic skills. Thoughtful use of carefully designed audio tapes, overhead transparencies, and sound films or videotapes can take the place of children in the early phases of a teacher training program. Achieving skill proficiency in the use of the informal reading inventory and the informal instructional inventory re-

quires practice under guidance; responding to auditory tapes and films can provide this practice. As supplements to the informative lecture, these materials can add structure and clarity to the total teacher training program. The need for improved teacher training is clear. We cannot afford to ignore the advantages these media offer.

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An Integrated Team Teaching Approach to Methods Courses

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TEACHER EDUCATION THROUGH APPLIED METHODS is an experimental program using a faculty teaching team in the integration of elementary education methods courses at Indiana University. The team consists of specialists from each subject area: language arts, mathematics, science, social studies, and instructional media. The TEAM project was developed in an attempt to reduce the overlap of content in the methods course; develop a favorable attitude toward innovation, change, and current trends in elementary education; provide practical application of the theory introduced in the methods courses; give experience in the analytical study of the teaching-learning process; and increase cooperation between the teacher education institution and the local school system, and an interaction of ideas toward teacher education of the members of the teaching team. The objectives

stated in performance terms identifies the intended proficiencies of the student.

The prospective elementary teacher

1. is able to express his philosophy of education in terms of objectives, motivation, child development, learning processes, evaluation, societal factors; to defend his point of view; and to implement his philosophy by his actions in the classroom.
2. develops the curriculum in his classroom on the basis of written performance objectives which are relevant to the pupils and in small-step sequential programming, and provides evidence of short and long range planning.
3. manages his classroom effectively by constructing limits and procedures cooperatively with pupils, disciplines fairly and consistently, and keeps accurate records of students' behavior and performance.
4. teaches in a variety of styles in keeping with goals, and matches the various learning styles of his pupils, using inductive and deductive methods, questioning, role-playing, discussions, pupil initiated activities, and problem solving situations.
5. develops a favorable attitude toward innovation and change and demonstrates this through his selective implementation of new teaching practices such as multimedia approach and utilization of films, filmstrips, television, and programmed instruction after careful evaluation of such.
6. demonstrates his knowledge of individual differences and readiness for certain skills by providing learning experiences of varying levels, differentiated assignments, and encouragement, depending upon the needs of his students.
7. continues his scholarly inquiry through additional education, reading professional literature, activity in professional groups; demonstrates his interest in educational research by identifying ongoing research in various subject areas, suggests possible action research for implementation in his classroom or in assisting other members of his profession.
8. evaluates his own teaching performance through measurement of pupil progress and through comparing and contrasting his performance with others, utilizing such resources as videotapes and interaction analysis techniques.
9. correlates and integrates the subject matter areas in content and skills whenever and wherever advisable.
10. motivates his pupils to learn by relating learning experiences to their everyday world by capitalizing on their interests, by providing a purpose for learning, and by using creative, original, multisensory materials and approaches.
11. demonstrates his knowledge of learning resources, material and human, by efficient selection and utilization of them on the basis of the objectives.
12. identifies major trends in elementary education, discusses them intelligently, and evaluates their implementation as applying to his own school program.
13. demonstrates his knowledge of evaluation procedures through appropriate use of multiple measurement techniques appropriate to the stated objectives.

Elementary education students are first introduced to a typical community, its public schools and the decision-making situations of its teachers through the use of simulated materials such as tapes, films, slides, and mimeographed material. The simulation is intended to provide a common experiential background and a setting for methods courses and practical experience in the public schools.

The students are involved in methods courses and major topics three mornings a week for a semester; two mornings per week they receive practical experience through observation and participation in the classrooms of the public schools.

Planning sessions of the team faculty are required weekly to ensure as much integration of the methods courses as possible. Each specialist in the subject area outlines the objectives of his course and the intended content. Analysis of these course outlines permits identification of topics which underlie all areas.

Reduction of overlap is then accomplished by the presentation of these major topics to the total group. The topics selected are Objectives of American Education; Developing Performance Objectives; The Learner and Motivation; Problem Solving, Inquiry, and Discovery; Interaction Analysis; Curriculum Patterns; Planning; Identifying Individual Differences; Pupil Evaluation; Reporting Pupil Progress; and Strategies for Change in Education.

As an example, the topic developing

performance objectives, after presentation to the total group, is discussed in each of the other methods courses in terms of how it may be applied to that particular area. In language arts, students are then required to develop objectives stated in behavioral terms for acquiring listening skills. At the same time, science, social studies, and math instructors will reinforce the development of behavioral objectives in their respective areas. Each of the major topics is treated in the same manner.

However, not all major topics will require assignments in each of the separate methods areas. The time which is saved by presenting major topics is utilized for practical experience in elementary classroom in the public schools and audiovisual instruction.

Another advantage of the team teaching approach is the opportunity to demonstrate the correlation of the content areas. Whenever possible the content in one course is related to that of the others as, the discussion of experience charts in language arts through the use of a field trip related to social studies. Utilization of children's literature books in social studies will be presented by the language arts instructor. Reading skills necessary in the content areas are discussed as they relate to science, social studies, and math.

Assignment of learning tasks is streamlined in the team approach. Discussion by team members of the type of learning tasks which can best be utilized in his subject area reduces the number of assignments and distributes them more evenly over the semester. After discussion of lesson planning, for example, it is not necessary for the student to prepare lesson plans in each of the subject areas. This learning task can be assigned to one area; thus, meaningless repetition of learning tasks is avoided. In addition, the assignments required are applied to their experiences.

Audiovisual instruction in the team approach is not treated as a separate subject, but developed in relation to the other methods areas. Film utilization, rather than discussed under a separate topic, is presented in terms of the presentation of a science film or film evaluation is accomplished while viewing social studies films. Production techniques may be the preparation of a bulletin board for language arts or the mounting of pictures for a science presentation. Thus, students see the value of acquiring these skills in their meaningful application.

Team members' opportunities to discuss their philosophies of education relative to teacher education are valuable. These shared ideas often clarify interpretations and prevent extreme contradicting philosophies from being presented to students. In other words, statements of teaching methods advocated by one instructor will not be completely refuted by another. This does not mean that differences of opinion are not welcomed, discussed, and shared with students.

Flexibility in the scheduling of class sessions is possible through a team effort. If certain problems arise in one methods area and additional time is needed to alleviate them, classes can be rearranged to allow for such situations. Also activities that require more than the designated class period such as a lengthy film, discussion groups, or special presentations can be accommodated.

Closer student-faculty relationships are possible in this program due to the integration of the methods courses, since the same instructors are involved in more than one activity. Team members supervise the practical experience of the students in the public schools which gives them additional faculty contact. An informal atmosphere is established during small group discussions with students to improve rapport.

During supervision of the practical experiences in the schools, instructors have the opportunity to observe activities conducted and problems encountered which then permits them to adjust their methods courses to the realities faced by the students. Also, closer working relationships between teachers and administrators in the public schools is possible. This provides use of the resources of the team faculty to the schools. Advantages to the elementary education students involved in the program include the opportunity to observe the operation of a teaching team which can be applied to their own teaching experience; a closer personal relationship with faculty members; practical experience in the classroom to provide motivation for and application of the methods courses, and audiovisual instruction.

Team members identify the esprit de corps established within the teaching team as a major advantage of the program. Increased time and effort on the part of the team members may be presented as a disadvantage, but when one weighs this against the many advantages, it is soon overlooked.

A Primer for Professors of Reading

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A UNIQUE AND CHALLENGING procedure evolved out of a situation in which I found myself several years ago. On the island of Tutuila, in American Samoa, I was part of a team responsible for educating preservice teachers, in-service teachers, and village supervisors. There were no guides showing how native Samoans should be instructed to teach reading. Only traditional stateside college texts and various reading series used

in the United States elementary schools were available. On a trip to New Zealand I discovered the book *Teacher*, by Sylvia Ashton Warner (1), a teacher of Maori youngsters. In her book she describes organic learning as a process in which she involves her students in order to find out what is meaningful to them. This provides a key to learning and reading in particular.

What a dangerous activity reading is, teaching is. All this plastering on of foreign stuff. Why plaster on at all when there's so much inside already? So much locked in? If only I could get it out and use it as working material. And not draw it out either. If I had a light enough touch it would just come out under its own volcanic power. And psychic power, . . . is greater than any other power in the world. What an exciting and frightening business it would be, even that which squeezes through now is amazing enough. . . . Epicure the infant room as one widening crater, loud with the sound of erupting creativity. Every subject somehow in a creative vent. What wonderful design of movement and mood! What lovely behavior of silksack clouds!

An organic ~~design~~ A growing living changing design. The normal and healthful design. Unsentimental and merciless and shockingly beautiful.

The question came to my mind, why not work with *teachers* in a consistently organic way? Since I did not know how to approach Samoan teacher trainees the book, *Teacher*, stirred my own creative processes and I began working out the idea.

Evolution of the story sequence idea

Our task in Samoa began with the recording of legends and village life. The students and I worked as fellow inquirers trying a determine ways of adapting the legends to various reading levels. Stateside reading texts were not suitable to the concepts a Samoan child understands. Several examples will serve to illustrate this point. When any Samoan woman of childbearing age in the village is called "mother," a "mother" as pictured in a stateside textbook showing a typical

American family—a mother, father, and several children with their pets—does not make much sense. In Samoa all “mothers” in the village suckle any child. The concept of a mother involves an extended family situation. A second example is provided in their type of housing. Samoans do not have walls on their thatched roofed fale. A “little white house” on Main Street, U.S.A. does not resemble the native fale. If a youngster is not happy in a particular household, he may go to another house to live as long as he wishes. These examples help to explain why children in Samoa have difficulty reading typical American family-type stories in readers.

From this setting in the South Seas came the idea of constructing self-styled reading stories, teachers manuals, and workbooks which have evolved into what are now called story sequences. That was the beginning of this “Primer for Professors of Reading.”

It is the purpose of this paper to describe the conditions which can be created for writing story sequences, to discuss their values, and to delineate the procedural aspects.

Teacher education in the states is not that different from Samoa. Multi-ethnic materials suggest a need for teachers to learn how to develop materials to fit their own teaching situations. In some classrooms teachers use materials without much knowledge as to why they use them. To lift the process of reading from a sterile, inorganic process to something vital and challenging for children, students in methods classes bring educational theory into relationship with actual practice by writing and using story sequences. The process enables experienced teachers to become more knowledgeable and inventive with the material they use in the classroom. It is a

of making methods meaningful

and providing enriching experiences for classroom teachers.

Creating the conditions for honest inquiry

Writing a story sequence is an excellent problem focus for inquiry with college students. J. Richard Suchman (3) developed his theory of inquiry as a process for teachers to use with youngsters, showing how meaning could be obtained from a problem focus, or discrepant event, by asking questions that provide data on which theories are built. Unfortunately, problem focuses sometimes slip into gimmicky areas that do not make much difference, but when a problem is provided—such as creating a story sequence—the focus assumes valuable humanistic dimensions. Students begin to inquire of the professor, peruse teacher manuals, and read teacher education texts with extreme interest since they have a genuinely urgent purpose for inquiring.

One of the major objectives is to enable students to formulate their own theories and to test them in relationship to how a child learns to read. The professor's role can be furthered by assuming teacher tactical moves as described in Strasser's *Components in a Teaching Strategy, Tactical Moves in Inquiry, Unit 1* (2). In this way the professor uses general, responsive, and initiatory moves in order to help students determine their rationale for action. Strasser describes how the teacher's tactical moves help to further inquiry and develop higher level thinking strategies for students. During class the professor strives to attain cooperation of a group of scholars, rather than a strong sense of competition. A human relationships laboratory develops where learning spontaneously occurs because of the interaction between group members. Actually, the professor must be honest in realizing he does not know ultimate answers,

but that knowledge is an ever changing thing and that in this situation he, too, is a learner. Of prime concern is that the professor be an inquirer along with the students as well as a facilitator of inquiry.

Procedural steps in constructing story sequences

When we first began the construction of story sequences at the University of Puget Sound, it was with great timidity. The idea was tested by a suggestion that it would be a possible project for students in the preservice reading methods course. The first story sequence was published. This student was soon asked to share it with local PTA groups and local educational associations. It was particularly exciting because this person's grammar needed improvement in both his oral and written English. Obviously, the benefits he derived from this experience were numerous and both his speaking as well as writing ability improved considerably.

At the beginning stage of story sequence experimentation students were permitted to adapt their favorite stories to the vocabulary of a series of readers as long as they identified the source of the story and which manual they used as a model. Using the format for the manual students constructed stories following the same sentence structure, length of story, and picture style consistent with the manual. In addition to this students made workbooks to accompany their stories. After several class discussions and individual conferences it became apparent that the entire assignment would work out better if it was divided into logical segments spaced over a period of time so that students could tackle each phase appropriately.

Although the steps in constructing a story sequence appear to be quite simple it is an organic process. The steps are as follows:

1. *Textbook material analysis*
Several weeks are devoted to study and comparison of leading textbook materials. Textbook company representatives come to demonstrate the use of their materials. During this time students meet in grade level seminars to note differences between strongly phonic oriented series, traditional (synthetic-method) type series, and linguistic type series. Students compare skills presented at each level by the different textbook materials and curriculum guides.
2. *Writing the story*
At this point it is helpful to introduce some creative writing lessons. Sharing imaginative materials is useful. Meyers and Torrance (1) have fascinating booklets for all age levels that stimulate the imagination. One for primary entitled *Can You Imagine?* develops creative thinking abilities by having the reader imagine what the world would be like if peas tasted like candy, or if all the shoes in the world were the same size. There is also a booklet for the intermediate grades. Both are geared to the creative expression of youngsters at these levels, thus helping the college student relate to children at each age. Journal articles may be referred to for their surveys of children's interests at different ages. Since the college students each tutor a child, the most valuable source of information is the tutor. It is important that students write their stories first without vocabulary limitations so that their creative ideas flow freely.
3. *Controlling the vocabulary*
Students study teachers guides as models for their manuals and use the cumulative vocabulary lists found in the guides for revising their stories. Students construct readability formulas and formulate theories about vocabulary control. They begin to note pros and cons for introducing vocabulary and it is interesting to see them discover vocabulary differences between series. To note consistent sound-symbol relationships and to probe for reasons why words are introduced in different readers at different levels is necessary.
4. *Illustrating the story*
Often students ask questions such as, should the pictures tell the story? Should illustrations be just for color as they are in some beginning books for a linguistic series? During this phase of the assignment students analyze types of illustrations and their impact. Artistic students will spend a lot of time on this aspect of the story sequence even to the point of helping their less artistic peers illustrate their stories. Consideration is given to factors such as the media to be used (watercolor, pen and ink sketches, photographs, tissue paper mosaics), special techniques (pop-up pictures exposing a bug in a flower), particular types of

paper (cloth paper that won't tear, acetate or laminated covering), or what to use for the print (primary typewriter or hand printing).

5. *Planning teachers manuals.*

Students are shown the one page McGuffey Reader manual and they outline contrasting ways of constructing teachers guides. Frankly, there are not many commercial teaching manuals that make exciting reading. There is one that a student did that was colorful and nice. She wrote it for a story about a teflon frying pan. In it she circled difficult words and noted in the context of the story that the teacher might ask certain comprehension questions. All too often teachers manuals describe common sense pedagogy, but self-made teachers manuals are intriguing.

6. *Planning activity books*

After students have written and illustrated their stories, controlled vocabularies, and written teachers manuals, they are ready to plan activity books. This includes the preparation of games, aids, crossword puzzles and skill development activities for their stories. Children find these activities fun and meaningful. Now the unit is ready for use with youngsters.

Emerging story sequence forms

1. *Writing coordinated sets of materials.*

Students are now writing coordinated sets of materials. New benefits are derived from having an entire group work out criteria for each procedural step. Reading levels are assessed more accurately. If a story is written for a first grade level, but is much too difficult, suggestions are made by the peer group for either altering the reading level or altering the story and sometimes both. Story content must somehow fit together and the manual must have consistent form. For unique words a miniature glossary may be formulated so that these words are not necessarily part of the cumulative word list. The Dolch Basic Sight Vocabulary may also be included. Interestingly enough, the attempt to coordinate stories often leads students into a "Dick and Jane" format which they desperately try to avoid. Publicity on the unreal world of Dick and Jane in a never-never land of white smiling families has caused students to avoid this situation. Animal stories and multiethnic cultural stories are more pleasing to the students. One group which coordinated its stories into a series realized that they had only written stories about things which interested them and decided to write an evaluation of the project so that future classes would not fall into writing about white middle-class backgrounds only. They suggested planning a series for a multiracial school so that the stories would fit the locale.

2. *Transcribing Indian Legends*

Children of the Nisqually Indian Reservation near Yelm, Washington have been tutored by University students in the reading methods course for a year now. By having students tutor the Indians on a one-to-one ratio, Indian children are able to do better in school. The tutors have administered several tests developed by Miles Zintz (5) which are meant to discover the amount of understanding Indians of the southwest have of English idiomatic expressions. Answers to two multiple choice tests are interpreted by the college students and related to the basal texts Indians used in the classroom. College students help by making personal dictionaries of the idiomatic expressions related to school texts, thus enabling Indian children to read more functionally at school. In the future, it is hoped that the dictionary idea can be incorporated into the story sequence. Then idiomatic expressions will be introduced in stories we develop about Indian life.

At the present time, students in my cultural anthropology and education course are carrying out an idea requested by Indian leaders who have wanted their Indian legends recorded before the elders die. It is difficult to get elders of the reservation in the right mood to tell these legends to students. Since the days of mission schools, when white ways were taught to be better than Indian ways, it has been difficult for elders to even want to share their stories. Periods of silence pass when these gentlemen recollect their rhythmical nature stories. Sometimes students sit until late at night, staring into oil lamps and listening to tales of owls and cougars, of lakes and mountains, about bears and ants trying to decide the length of night and day. Each story is transcribed for several reading levels for children to enjoy. Students in this class composed of teachers, administrators, and students who have already completed student teaching, have found this experience challenging.

Summary of values.

The meaning a student derives from writing a story sequence tends to be diversified, often a stimulus to creative teaching. It comes from the organic nature of the project and cooperatively working it out as a team with other students. In writing story sequences they tend to be more alert and knowledgeable of textbook material than those who do not have this exposure. They become more tolerant, critical, and yet more open to creative ways of using materials. Capabilities unfold

during the writing process which students never realized before.

During the past several years numerous students have given testimony to the fact that the story sequence assignment has been a valuable learning experience for them. Just as Marshall McLuhan offers the "probe" rather than the "package," students teach themselves by the story sequence process. By probing for a way rather than being given a package which represents the way, teachers can more easily effect change, innovation, and creativity in the teaching of reading.

What an exciting thing teaching can be, learning can be—that is what this "Primer for Professors" is meant to convey.

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How to Write a Research Report

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THE PURPOSE OF THIS PAPER is to discuss some basic considerations which must be made when reporting research. It will not serve as a guide to use for getting a report published in a particular journal. My remarks are directed toward making research reports more readable and hence, hopefully, more understandable.

This paper is divided into two main parts: organization of the report, and practical considerations.

Organization of the report

Review of related research. One of the first things which should be considered in a research report is the conceptual framework from which the specific problem developed. In most research reports a *brief* discussion of past research will put the present study in perspective for the reader.

Perhaps the previous research on the topic has shown conflicting results and it is thought that a further study may clarify some of these results. Or maybe research results have been fairly consistent, but it is hypothesized that if one variable is manipulated differently then another result will occur.

By a review of related literature one can show how the present study is dependent upon prior work.

Statement of the problem. The statement of the problem should be made in unambiguous terms so that the reader actually understands what is being studied. As an example, consider the following problem: What are the effects on first grade reading

achievement for two groups of pupils, one taught using materials written in the Initial Teaching Alphabet (i.t.a.) and the other taught using materials written in traditional orthography (T.O.)?

Hypotheses. While hypotheses may be stated in a positive manner, initially they should be converted to the null form for statistical testing. It is important that the hypotheses are stated so that they are testable. Here are two examples: 1) There is no significant difference in reading comprehension as measured by the Paragraph Meaning Subtest of the Stanford Achievement Test for pupils taught with materials written in i.t.a. and those taught with materials written in T.O., and 2) Children using materials written in i.t.a. will be better readers at the end of grade one.

The first hypothesis is testable because it gives enough specific information and uses concrete terms. The second hypothesis is not testable because the word *better* is vague. Better in what respect? Does it mean that the children will be better in reading comprehension or in vocabulary or something else?

The level of statistical significance which will be accepted should be specified before the study is begun. If the level is set at .05 it means that five times out of one hundred an incident will occur by chance alone and one is willing to say that in this particular situation it did not occur by chance only.

Research design. When deciding on a research question one must ask, "What are the factors which affect what I am trying to find out? What are the variables which must be controlled in this experiment?"

In the example of comparing i.t.a. as a medium for teaching beginning reading with the traditional orthography, the first and perhaps most important thing to be controlled is the "teacher-classroom" effect (4). The results of the first grade studies have indicated that the teacher definitely influences the performance of children in her classroom. One could argue that individual differences among teachers have as much of an effect on the average score of the class as have the two media being investigated.

In order to control for the teacher effect it is possible to have each teacher teach i.t.a. and t.o. This is called "blocking on the teacher" and could be done by extending the study for two years so that one teacher could teach i.t.a. one year and t.o. the next year.

If this is not feasible, then a measure of the teacher's ability (for example, the mean reading score of her previous first grade class) could be used as a control variable when the data are analyzed. The pupils in the classroom are all subject to one treatment, either i.t.a. or t.o. Within a classroom, pupils are also subject to other influences which affect the class as a unit (for example, the time of day the class meets or the noise outside the window). The scores on the criterion measures for pupils who share these influences are correlated and cannot be considered independent. Thus the "experimental unit" in a study of this kind is the classroom, not the individual student. The mean scores of the different classes become the data of the experiment, *not* the scores of individual pupils. The number of degrees of freedom is determined by the number of classrooms in the experiment, *not*

by the number of individual pupils. Usually the number of pupils in the classrooms is about the same. Therefore the classroom mean scores can be used in the analysis without further concern for the number of individual pupils in the study.

Another variable which must be controlled is the difference between schools. This difference exists because pupils' achievement tends to reflect the home environment, educational level, and value system of parents, and these vary from one neighborhood to another.

We can assign at random each treatment, i.t.a. and t.o., to classrooms within each school. This is called "blocking on schools" and the effect of the schools becomes constant across the treatments.

A third consideration is the manner of assigning pupils to classrooms. If the pupils are assigned by ability level or by any other grossly nonrandom procedure, a definite bias is introduced into the experiment. The pupils may be assigned randomly to the classrooms to attain initial equivalence by chance. This will help to reduce error in the experiment, but it is *not* required in order to make a valid experimental inference. The random assignment of the i.t.a. and t.o. treatments to the classrooms, however, is essential for a valid experimental inference.

Other factors which should be controlled in this experiment are the time spent in teaching reading, the method of teaching reading, the materials used, and the Hawthorne effect.

In order to control such variables, a meeting could be held with all of the project teachers, i.t.a. and t.o., to work out times when reading would be taught. Most school systems allocate about one hour and a half per day for teaching reading in first grade. Visits could be made to all classrooms to make sure that this allotted time is not consistently exceeded. If the amount

of time for teaching reading was exceeded and there were differences between the i.t.a. and t.o. groups at the end of the experiment, it would be impossible to know whether it was the extra time or the treatment effect (i.t.a. and t.o.) which had made the difference. Therefore the time spent for teaching reading must be controlled.

Since this study is designed to test differential outcomes when children are taught by i.t.a. and t.o., the teaching methods should be controlled. The teachers should be encouraged to follow the specific methods outlined in the teacher's manuals that go with the materials.

The materials should be the same for both groups of subjects except that one set would be printed in i.t.a. and the other set in t.o. If this is not done, then the differences in the materials may affect the outcomes.

When subjects know they are participating in an experiment, they may alter their behavior and this may affect the results. This is called the "Hawthorne effect." In the study which is being used as an example, the Hawthorne effect may be minimized by giving all teachers, i.t.a. and t.o., the same amount of attention. All should receive in-service education, if it is given. All should receive the same number of visitors, and observations should be kept equal. It would also help if no opinions about the relative merit of i.t.a. and t.o. were given by the experimenter. He should be an unbiased scientist examining the merits of both media for teaching beginning reading.

In reporting the research design it is necessary to tell the reader how many schools, classrooms, teachers, and pupils per classroom were included in the study. Other characteristics of the subjects such as age, sex, and socio-economic level should be mentioned. Use research has shown these vari-

ables to be related to success in beginning reading.

Data analysis. When reporting the analysis of the data, a clear step by step description of what was done is important for the reader's understanding.

In the present example, a multivariate analysis of covariance would be used to test the statistical significance of the difference between the i.t.a. and t.o. group means. The averages for each classroom or subsets of the Stanford Achievement Test would constitute the dependent variables in the data analysis.

The covariables or the control variables could be a measure of the teacher's ability and the average reading readiness test scores for each classroom.

Multivariate analysis of covariance is used and *not* t-tests between the means because the data are multivariate. The procedure of doing multiple t-tests is not recommended because the tests are not independent. The probability of at least one or more significant results occurring by chance is not easy to determine.

Suppose that the t-statistic was used to test the mean difference between the i.t.a. and t.o. groups on the Word Reading and Paragraph Meaning subtests of the Stanford Achievement Test. Suppose further that significant differences were found favoring the t.o. groups at the .05 level. What does this mean? Does it mean that t.o. produces superior readers in word and paragraph reading? No, the results are impossible to interpret because word reading and paragraph meaning are obviously related to each other. Maybe t.o. produces better word readers and that in turn affects the paragraph meaning score.

For this reason the t-test is not the appropriate statistic to use when there are two or more dependent variables. An analysis of variance or covariance

should be used, *not* multiple t-tests. There are numerous computer programs available for performing a multivariate analysis of variance or covariance.

After the data are analyzed, and if they meet the specified level of significance, a question should be raised as to whether that level has any practical significance. Suppose the i.t.a. group as a whole had a mean raw score of 15 on the Paragraph Meaning subtest of the Stanford Achievement Test and the r.o. group's mean was 18. There is a significant difference between these means at the .05 level. These raw scores can be converted into grade equivalent scores to ascertain whether there is any practical difference in the performance of these two groups.

A raw score of 15 converts to a grade equivalent score of 1.6, whereas a raw score of 18 converts to a grade score of 1.7. Although the difference between the raw scores for the two groups was statistically significant, in practical terms there is very little difference.

Since we are discussing practicalities, let us consider the significance tests which are used with correlation coefficients. Suppose in the study being used as an example, it was desirable to determine the value of the reading test as a predictor of end-of-year reading achievement. A correlation coefficient would be calculated which would tell the degree to which these two measures were associated. It would not tell anything about causality.

When two variables are highly correlated, there may be a tendency to conclude that one of them caused the other. If intelligence and school grades are found to be correlated, some people will conclude that those who get high grades do so *because* they have a high intelligence. If there is a high correlation between the

of parents and their children, some will assume that the tallness of the parents somehow caused the tallness of the children. Sometimes this inference about causality is warranted. Suppose there is a high correlation between the heights of twins. Does this mean then that one twin is tall because the other is? How do we know then which is the "cause" twin and which is the "effect" twin? Obviously it would be ridiculous to infer a causal relationship in this case.

Correlation does not imply causality. It may imply that both of the correlated variables may be correlated with some other variable, and this third variable may or may not cause both. In years when the apple crop in New York is good, the pear crop is also likely to be good. Does one good crop cause another? Probably not, but both might be found to be related to the amount of rainfall which may have caused the good crops.

The results of the first grade reading studies have shown that knowledge of letter names correlated approximately .5 with end-of-year reading achievement. Does this mean that knowledge of letter names caused success in beginning reading, or are both these variables related to a third variable, perhaps types of stimulation to learn found in the home which may account for the relationship? This question needs to be considered. The point is that all correlation coefficients should be interpreted with caution. Significant correlation coefficients should be studied carefully because very low correlations can be significant if the population is large enough. For example, a correlation of .11 is significant at the .05 level when the number of subjects is 364. A correlation of .19 is significant at the .01 level when the subjects number 375. Even though these coefficients are statistically significant they have very little practical value. Prediction about indi-

viduals does not become dependable until correlations reach .9 (2).

Findings. After the analysis of the data is reported, the findings are presented. Findings must be based on the evidence which has been collected. This is the place in a research report where data are exhibited. Often tables or graphs which help to clarify the data are also included.

Limitations. The limitations of a study should be noted. No piece of research represents the ultimate and provides the answers. A thorough, impartial scrutiny should be given the study and then the things that were omitted or ignored which would limit the generalizability of the findings should be discussed. For example, suppose the subjects came from a private school which enrolled highly selected children. Findings from such a study could not be generalized widely. They could only refer to pupils in private schools similar to the sample of students.

Conclusions. Before writing the conclusions for a study, an examination of the findings should be made. Then the limitations of the research should be weighed. The conclusions should be written on the basis of these findings and limitations. For example, a hypothetical study is done giving a pretest, experimental treatment, and a post-test to one group only. Suppose the findings show that the group gained 1.7 years in reading comprehension scores during six months of instruction using the experimental treatment. One might be tempted to conclude that the treatment is very helpful for improving reading comprehension. But since a control group is lacking, a definite limitation, the gain could as well be attributed to maturation or to a remarkable teacher, or any number of other variables which were not controlled. In the design used, the lack of control is so obvious that it needs any results obtained and really

no conclusions can be drawn.

Implications. The practical applications of the findings may be discussed when implications are written. Suggestions could be made concerning the use of the findings in the school setting or another environment. Further hypotheses which need to be tested could be postulated.

Suppose a study was conducted in which an experimental group received training in visual-motor activities and a control group did not. The data included pre- and post-test scores on a visual-motor test and a readiness test. It was found that the experimental group performed significantly better than the control group on the visual-motor test but not on the readiness test. From this finding it might be inferred that since the visual-motor training showed little transfer to a school related task (performance on a readiness test), it could be eliminated from the school curriculum. On the other hand, it might be suggested that this finding leads one to ask a subsequent question, "What effect does fostering visual-motor development have on early school achievement, rather than on readiness, as was investigated?" These are types of implications which may be drawn from particular findings.

Practical considerations

When writing a research report for publication, one should be cognizant of the fact that the readers, no matter who they are, are probably busy people who have numerous things to read. Therefore the report should be concise. The readers' time should be respected, yet enough information must be included so that the report is understandable and able to be replicated if that is necessary or desirable.

The language that is used should be simple and unambiguous. Technical terms which must be used should be defined.

The use of short subheadings (for example, *research design, conclusion*) clarifies the organization of the paper and aids readability.

After the report is written, have someone who is not too involved in the topic, read it. A critical reading and discussion of the report will help to clarify the points to be made.

It is usually a good idea to make three or four copies of the report. After it is published reprints will probably be made available.

Summary

It is hoped that this discussion of some basic considerations which must be made when reporting research has focused on topics which will be regarded when research is begun, and again when it is reported.

These same considerations could also prove valuable when research is being read. The same criteria which are necessary for writing a well designed, correctly analyzed, and logically concluded research report are also guides for reading research critically.

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Experimental Designs for Research in Reading

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THE PURPOSE OF THIS PAPER is to describe two research designs and their

applications which are suitable for experimental studies of reading. The designs given major emphasis are the factorial design, to be used with independent groups of subjects and a repeated-measures design, to be used when the same subjects are administered all treatment conditions. Since space restrictions prohibit the extensive development which this topic deserves, the reader is directed to Winer's book (3) for a more comprehensive discussion of research design.

Before starting the discussion, the writer would like to express a point of view regarding the design of research in reading. Good design is essential if we want to learn more about the effect of specific input variables (e.g., reinforcement, stimulus similarity, attention) on outcome variables such as word recognition, reading speed, and comprehension. Laboratory studies of reading have certain advantages which classroom studies do not enjoy. Consequently, laboratory studies often should be a first step in an experimental program on reading. If the laboratory studies turn out as expected, then larger-scale classroom studies may be carried out to determine if the experimental variables are still effective when observed in a less-controlled environment. An example of this *modus operandi* may be found in an experiment on the effect of pictures on learning a sight vocabulary (2).

The first part of the study on pictures and reading was done in a laboratory. Reduced to simplest terms, there were two experimental conditions, a picture and no-picture condition. In the picture condition the child had to learn to read four words when a picture illustrating the word was present. In the no-picture condition the child had to learn to read the same four words, but no picture was present. On the test trials the same four words were shown to both groups with no picture present. The test results showed

that the no-picture group did significantly better than the picture group. This finding suggested that a classroom study should be attempted. In the classroom study a first grade class was used. Both groups of children received reading instruction simultaneously in the same class by the same teacher. One group had no picture in their reader, the other group had a picture. The printed words were the same for both groups. On the test we found that the poorer readers with no picture present learned significantly more words than the poor readers with a picture present. Among the better readers there was no significant difference between the picture and no-picture conditions. Thus, we found that although the results were not precisely the same in the two studies, the classroom finding did indicate that the variables found to be effective in a laboratory setting were also operable in the less controlled environment of the classroom. The unique value of the laboratory study was that it provided greater information about what children actually were looking at when pictures were and were not present, which the classroom study was unable to do.

It seems apparent that laboratory and classroom studies are important in reading research. In both kinds of studies good design is important, but what is good experimental design? The canons of good design decree that the variables or stimuli impinging on the subjects in the experiment be so controlled that when differences in experimental treatments are found, the cause and effect relationship is such that we can isolate the specific effects of each of the experimental variables responsible for the differences among their treatments. If an experiment is well designed, an impartial person should come to the same conclusion as the experimenter with regard to the cause and effect relationship. The im-

partial person should not be able to identify an uncontrolled variable which might have had its effect upon the experimental results.

An all-too-common design error found in reading research is easily illustrated using an experimental and control group design. The researcher is interested in studying the effect of teacher comments to students on the student's acquisition of a sight vocabulary. The same teacher is used in both groups. She is instructed to use praise and blame when appropriate with the children in the experimental group but to remain as neutral as possible in her comments with the children in the control group. At the end of the experiment the experimental group proves to be superior in number of words learned. The experimenter concludes that appropriate use of praise and blame are effective techniques for increasing achievement in reading. An impartial person disagrees with the conclusion drawn from the experiment. He claims that the difference in reading achievement in favor of the experimental group would have been even greater had blame been eliminated. According to the impartial person, blame inhibits the acquisition of a sight vocabulary. The results of the study are confounded because the separate influence of praise and blame cannot be determined.

Several simple modifications of the previous study would permit more precise conclusions to be drawn regarding the specific effects of praise and blame. One way to overcome the confounding present in the previous study would be to use the experimental and control group design using but one variable with the experimental group; that variable might be praise or blame but not both together. Hence, one experiment might be run using praise as the experimental variable. A second experiment might be run using blame as the experimental variable. With both of

these studies the control group would have a teacher who was neutral in her comments. While these experiments are more precise and avoid confounding, what is lacking is information about the interaction of praise and blame on reading acquisition. If the researcher desires to know the individual effects of praise and blame as well as their interaction effects, a far better plan would be to use factorial design.

A factorial design permits the researcher to determine the individual as well as the combined effects of two or more experimental variables when used simultaneously. To illustrate the use of the factorial design the experiment on praise and blame will be used.

		Praise	
		+	-
	+	1 Blame (+) Praise (+) (Interaction effect)	2 Blame (+) Praise (-)
Blame	-	3 Blame (-) Praise (+)	4 Blame (-) Praise (-) (Control group, neutral comments only)

Figure 1. A 2 x 2 factorial design showing either the presence or absence of praise and blame.

As seen in Figure 1, the factorial design has four groups. The experiment might be run as follows. One hundred twenty students would be randomly selected and randomly assigned to one of four groups, with 30 to a group. The same teacher, materials, and reading method would be used with all groups. The plus and minus signs in Figure 1 indicate the presence or absence of the experimental variables. Thus, Group 1 gets both praise and blame. Group 2 gets blame but no praise. Group 3 gets no blame but does get praise. Group 4, the control group, neither blame nor praise. The

control treatment consists of neutral teacher comments. Analysis of this factorial design is by means of a two-way analysis of variance (3: 228). By using this factorial design the experimenter can determine the effects of blame separately, praise separately and the interaction of the two. It permits a number of comparisons to be made, each with precision; whereas the confounded experimental and control group design does not permit the researcher to determine with precision the effects of praise and blame separately. When treatment effects are confounded with each other, all the researcher can say at the end of the experiment is that one group is superior to the other. If the sole objective of the reading researcher is to find out how to increase reading achievement, then, perhaps, the use of confounded designs can be justified. However, the same objective plus information on the effects of specific variables on achievement can be obtained only by using designs in which there is no confounding.

One shortcoming of independent group experiments; that is, experiments which use different groups of subjects for each of the experimental conditions, is that the assumption of initial comparability of the groups may be unwarranted. Although random selection and random assignment of subjects to treatments allows the researcher to state with a certain degree of confidence that the groups are comparable, nevertheless the probability remains that by chance alone one of the groups may be significantly different from the other groups at the onset of the experiment. Another factor which should be considered is the variability existing among experimental subjects. Because of differences in background, responses of subject exposed to the same experimental treatment may show relatively large variability. If this source of variability cannot be estimated, it becomes part of

the experimental error, thus reducing the sensitivity of the experiment. Significant differences existing between experimental treatments may be masked by large error variance stemming from intersubject variability. Under certain experimental conditions a different kind of procedure can be used which overcomes several of the shortcomings of experiments using independent groups.

The alternative to independent group experiments is the repeated-measures experiment. With repeated-measures experiments the same subject is exposed to all treatments. Since the same subjects are used with all treatments the possibility of having one group significantly different from the other groups is eliminated. Other advantages in repeated-measures experiments are that they are more sensitive to differences among treatments and fewer subjects are needed.

To illustrate the use of repeated-measurements in reading, a study by Olson and Pau (2) can be used. They tested the hypothesis that children learn to read emotionally laden words like *hate*, *kill*, and *burn* more readily than nonemotional words like *come*, *hall*, and *many*. The two classes of words represent two treatments. In this study each subject learned both emotional and nonemotional words. The effect of emotionality of words of learning a sight vocabulary was determined by counting the number of times each kind of word had to be presented for the child to recognize it three times in a row. Analysis of the results was by means of the *t*-test for correlated samples (3: 39). Because each child got both treatments only eighteen subjects were required for the study.

I would like to close this paper by pointing out that much of the reading research published today is characterized by the use of appropriate and frequently sophisticated statistical analy-

sis. Unfortunately, however, often the research is poorly designed. While good design and appropriate statistical analysis are both important, of the two, design is more important. Once a study is completed the best statistics cannot overcome the harmful effects of a poor design. If a study is well designed but wrong statistics are used, one can always reanalyze the data.

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Designs for Measurement of Status

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THIS PAPER REPRESENTS half of a two-part symposium on research design. The emphasis here will be on the measurement of current status. That is, we will be concerned with designs which take a cross-sectional sample from the longitudinal flux of behavior. These cross sectional samples may be of varying lengths. All that is required is that the period be treated logically as a unit for the purpose of study. Such samples are, of course, conceptually prior to any designs for measurement of change, the topic of the other half of the symposium. First, we shall examine typical situations in which the focus of a problem is the status of a variable. Next, we shall turn to the empirical and logical problems involved in such measurement. Finally, we turn our attention

from concern for status to the complementary but often ignored problem of variability as a worthy topic of study.

Typical problems in the measurement of status

Descriptive summaries of a large group. It is often desirable to provide a statistical picture of large groups of students. For example, one may wish to describe the skills of an entering freshman class, or of the total eighth grade, or of all the students in an honors program. These studies would be useful for planning remedial programs, establishing priorities for new purchases, and noting trends in ongoing programs.

If the number of students to be summarized is large, it is often desirable to sample, rather than to test every student in the potential population. In such a situation there are two possible approaches that could be used, each with different design problems. One approach is to take a random sample. In this design, students are selected in such a way that every individual has an equal and independent opportunity of being included in the sample (1). These characteristics are vital if the sample is to be representative of the total group. The classic technique for this procedure is to assign a different number to each student and then use a random number table to draw numbers, and therefore students, to be tested. As a common alternative, student cards can be filed in alphabetical or numerical sequence. Randomness is not violated if every n th student from the list is selected and tested (2).

It may happen, however, that some students have no chance of appearing in the sample. Such a constraint violates the requirement of equal opportunity for sampling. For example, if it were desirable to test an incoming freshman class, it might be convenient to sample small orientation groups as they appear on campus. However, if

for administrative reasons only the first or last groups to appear were sampled, there would be a distinct biasing factor. Many students would not have a chance to be tested. The students who for one reason or another have early or late orientation dates would make up the sample. They probably would not be representative of all freshmen. We might suspect that those coming to campus early might be from upper socioeconomic levels and would not need summer employment, or from lower levels and could not find jobs. Either situation would give a biased picture of the freshman class. That is, some students contribute more to the averages than others. It would be more desirable to randomly sample groups all through the summer. Thus, if all students do not have an equal chance of appearing in the sampling, the picture of status may be inaccurate.

Even though all the students have an equal chance of being selected, some may not have an independent chance, and thus invalidate a sample (1). That is, the selection of one person may automatically raise the selection probability of another who is associated with him. Let us imagine a school with 1,200 enrollment. We desire a 10 percent random sample of students to take an attitude survey. Having 120 individual students come in for testing, however, is too difficult. Will the design problems be solved by selecting six classes of 20 students, if the classes are chosen by a random number table? Yes and no. The requirement for equal opportunity of selection will be met. Thus, we would expect the sample to be unbiased. But what is being sampled, students or classrooms? Clearly, the latter. Because of the violation of independence, the sample unit is groups in rooms, not individuals (6).

There is another problem. Some investigators would assume they were

sampling 120 students from a population of 1,200. They might not realize that they were actually drawing six classrooms from a population of approximately 60. They would compute the standard error of their statistics using the inappropriate n of 120 students, instead of working with a replicated n of six classes. Since the standard error of a mean is reduced by using an increased sample, the incorrect computation has two effects. First, the smaller error term allows a fallaciously narrow confidence interval. The results would be an apparent precision of measurement but totally unjustified (2). Second, because the errors of measurement are so small, the differences between sample statistics may not exceed the conventional levels. With the correct n 's and the correct standard error, the differences that are there may show up. Violations of the independence assumption lead to conservative inferences (9).

The second approach to the sample-for-summary problem is to draw a controlled, nonrandom sample. In that situation, one would specify and intentionally select samples which were known to be representative of the population in some way. If a population contains a known percentage of male, freshmen, arts-college students living off campus, the sample would be controlled to contain a similar percent of such individuals. It is quite important that the actual students making up the sample be randomly selected.

The controlled sample is more efficient than a purely random procedure if the controlled subgroups are known to have less variability than the population from which it is drawn (9). In the case of our hypothetical freshmen, the controlled sample is preferable if the male freshmen have more homogeneous scores than the total class. If not, the controlled procedure lacks efficiency and may be biased. In general, the more precisely the sample

can be controlled, the greater the efficiency, but the greater the cost per respondent. The extra cost is the frequently necessary "call-backs" to test students who have been identified by random procedures. Once a student has been so identified, he must be tested or the results will be biased.

Screening. Another reason to carry out status studies is to screen students into separate or special classes. A common example here is to screen college freshmen and take the bottom 10 percent for some special program such as reading or study skills. Unfortunately, this may be a very inappropriate procedure if the wrong type of test is used. When screening to cutoff below a certain point, such as the bottom 10 percent, it is best to use a test that is known to have a 50 percent difficulty index at that cutoff point. Tests are most discriminating at the point where half the students fail. In cutting off the bottom 10 percent of a college freshman group, it would be inappropriate to use a test normed on college freshmen. The test would lack sufficient differentiating power at the bottom end of the distribution. In this case, it would be better to use a test normed on high school seniors or even high school juniors and to take everyone below the midpoint for the high school population. In terms of the Triggs Diagnostic Reading Test national norms, in order to cut off the bottom 10 percent of a college freshman sample, one should use the tenth grade median.

It is well to remember that in any kind of special screening studies, students selected as atypical, either high or low, will, when tested a second time, regress toward the mean of the first test (1). Thus, students selected for special treatment because they are low would normally show much improvement on a post-test even if the treatment were totally irrelevant.

Diagnosis. A third situation which

can properly be considered a study of status is the diagnosis of individual skills. In this case, one tests to find comparative scores for different abilities: rate, retention, vocabulary, etc., rather than for a total overall score on reading. In fact, in a diagnostic situation the total test score is relatively unimportant (5). This means that in setting up a test battery it is important to be quite sure that the subscores used in the diagnostic categories are uncorrelated. If there is a high intercorrelation between subscores, there is no separation and very little diagnostic validity to the test.

Establishing base rates. A fourth reason for carrying out status studies is to establish a solid base for experimental manipulation in the future. This blends into the question of designs for the measurement of change. Before assessing this change, it is necessary to have a solid base of measurement. If treatment designed to increase a variable such as rate is applied when the measure is on an upswing anyway, it is possible to get an artificially high score. In such a case, the researcher has a highly increased probability of rejecting the hypothesis of no difference when, in fact, he should not do so. For example, giving a lecture on use of the library and finding that students increase book checkouts may not allow one to conclude that the lecture was effective. We would have to show that students were not increasing their use of the library because of a forthcoming term paper. We need to know what the status of the behavior of interest was over a long period of time. Probably the most thorough study of college student reading behavior was done by David Yarrington, who examined reading rates and amounts week by week through an entire academic semester. He reports slight upswings in amount of time on reading prior to examinations but significant variations from week to week

(12). Thus, it would be necessary to gather base rate information prior to any experimental studies designed to manipulate the amount of reading which students do.

In such a situation of base rate gathering, an experimenter might be inclined to briefly measure the behavior of interest and then block students into groups with similar scores. He might use an analysis of variance or even covariance technique to equate for the measured pre-experimental behavior (9). Note, however, that sophisticated analysis would be of little help in this case. The design question is one of long-term base rate. The period of observation must be long enough for the behavior of interest to stabilize. The question of an adequate criterion for stability is almost untouched in the field of reading. What is "stable comprehension"?

Murray Sidmen, in his book *The Tactics of Scientific Research* states, "The descriptive investigation of study-state behavior must precede any manipulative study. Manipulation of new variables will often produce behavioral changes, but in order to describe the changes, we must be able to specify the baseline from which they occurred; otherwise we face insoluble problems of control, measurement, and generality" (1:238).

Problems with the notions of status

Measurement problems. There are certain measurement problems involved in the notion of status. First of all, there are the universal concerns which apply to any testing situation; whether it be status or change. There is the problem of validity. In some cases this is no problem. We can develop a test of dart-throwing and directly measure students' effectiveness. But in the field of the readings this is hardly the case. The validity of a test of comprehension, for example, depends on a whole series of assumptions

that we must make about the nature of comprehension. There is no obvious overt criterion. The use of such quasi-poetic, nonbehavioral objectives as "grasp the main idea" does not in any way solve the problem. Comprehension is internalized behavior, not open to the scrutiny of the researcher. We must infer the behavior concerned. The ultimate criteria in reading, the objective behavior, is not examinable with current technology. If it is ever to be brought out for scrutiny, it will be through the efforts of other behavioral and physical scientists working jointly with reading specialists. And until that cross collaboration begins, we are doomed to reading tests of questionable validity.

Another universal problem is reliability. Any measurement, physical, biological, social, or educational will have some error built into it. Thus, we can expect slight differences between scores for the same skill measured on two different occasions. Each test has a reliability quotient which gives us some notion of how discrepant two measurements will be. These reliability quotients may be based on the various types of correlations—part scores, test, retest, and parallel forms (5). Each has certain advantages. Hopefully, the test manual accompanying a particular test will describe the type and extent of reliability, and give the logic for its selection.

In the measurement of status we must be concerned with more than just the reliability of the test. We are in a sense asking "what is the reliability of the student." He will change from test situation to test situation yet we are purporting to measure something stable about him. We are able to talk about the reliability of a test because that is what is printed in the manual. But we should not forget that we are also concerned about the reliability of the human who takes the test. Think now much we could increase the

value of our research and service if each student had his own reliability quotient, perhaps stamped on his forehead!

There are several nonuniversal concerns for measurement of status. These would be specific to a particular situation. We might, for example, ask in a particular study "What is the student's motivation for taking the test?" Another way of saying it is, "What is the student's reward for taking the test?" Couching that question in the language of learning theory (reward) immediately raises some interesting research questions. In what way does manipulating the "reward" affect the test behavior? Another particular question is, what is the effect of multiple testing in a battery? What is the pile-up effect, in other words, of taking several tests. Wark and Kolb (10) found that instead of test sensitivity and test experience, repeated testing can produce test fatigue and boredom over a short period of time. These provincial, unique questions can raise clear havoc in a stable baseline design. And of course, there is always the question of unplanned disruptive effects. Noise outside a testing room can affect testing. We might call this the brass band effect.

Empirical problems. Quite aside from the measurement questions, there are certain empirical problems with the notion of status which must be faced. In fact, they are critical for research of any sort. Testing for status of any skill takes time—time to test, to score, to interpret, to act upon those interpretations. Yet the skill measured is assumed to be stable throughout the period. What a student was during the time he took the test, he is presumed to be now when he is admitted to a reading program or exempted from an English course. The assumption that student skills are stable through time demands that at least one of two situations hold:

Strong assumption. The output measure will be constant throughout the time period that the student is being tested. This is not a safe assumption.

increase through the period but that the more rapid readers (S_1 , S_2) tend to fluctuate rather independently and quite widely. We can't assume that even such a thing as reading rate, eas-

Figure 1

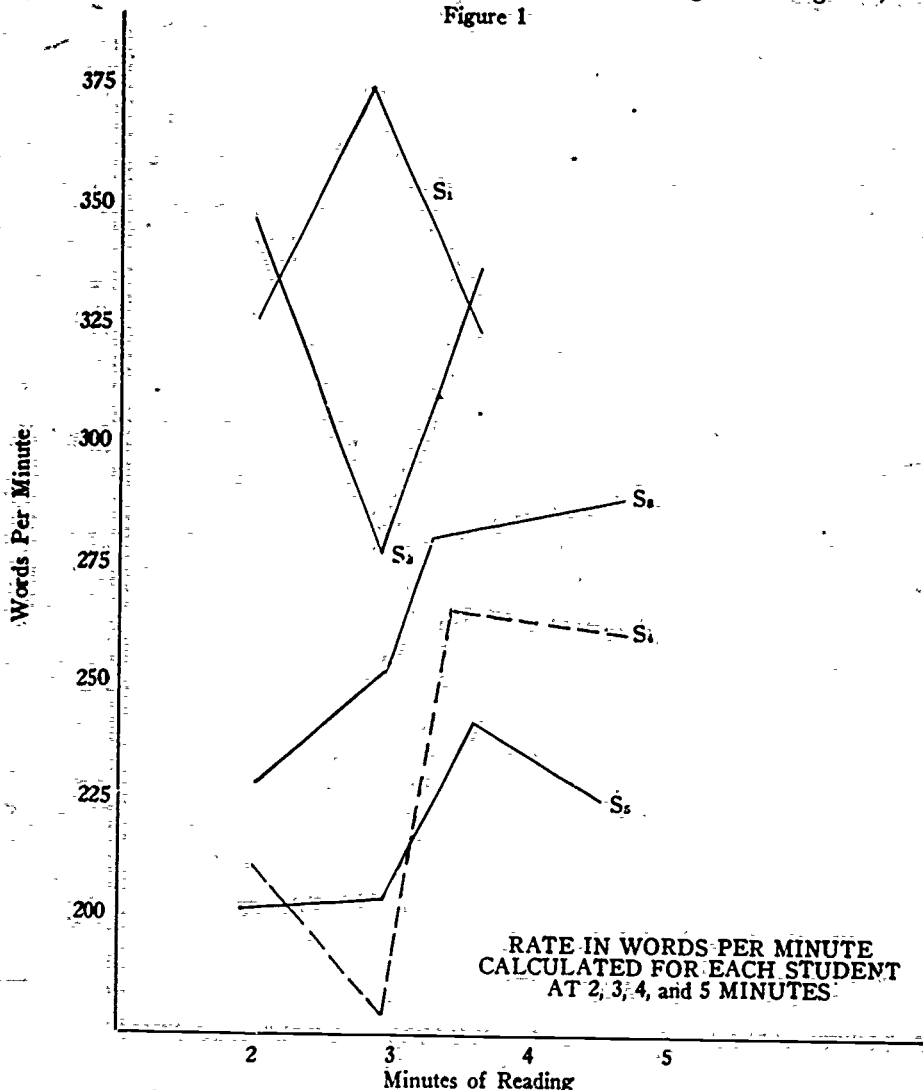


Figure 1 shows the fluctuation in reading rate during five minutes of measurement using Form A of the DRT upper level survey. Students were told to mark the line being read at the end of the two through fifth minute. We note that some students (S_1 , S_2 , S_3) tend to show a gradual

ily measured though it is, is stable through the testing period.

Weak assumption. The output will show some variability but the amount will be random. Thus, variability will balance or cancel out over time. Here again there is some doubt that the assumption is always true. Humphrey

(3) reports that variability in rate is not random. It may interact with level of rate in a very complex way. Fast readers were most variable and midrange readers were least variable. Slow readers were intermediate in variability. The results are based on three to seven samples of four minutes. Unfortunately, the published data report only group means. There is no indication whether or not individual students had achieved stable rates at some time during testing.

Variability as data

In addition to the empirical questions, there are some conceptual problems with the notion of status. The very word "status" suggests a limited, if not fixed value. It suggests well defined quantities in the data. It biases us from thinking about variability as a datum in and of itself. When one considers status, one treats variability as a nuisance factor. Yet there are many questions under the rubric of status problems that would justify a closer look at the extent and determinants of variance. These include, but are not limited to the following:

1. Flexibility. Typically this is considered to be a function either of the purpose or the personality of the reader (8). It is, indeed, possible to affect variability in rate by appropriate instructions (11), what we could call purpose. What then, are the determinants of flexibility conceived as a variability in rate? How does one increase, decrease, and shape it?

2. Readability. We can think of readability as a problem of variance. Again, we tend to think of the readability as a fixed value measured once and determined solidly (7), yet within material of specified readability there may be fluctuations that would be worth examining.

3. Study-type Reading. We might consider the approach to study-type reading as a problem in variability. Students should skim some material, and slow down and read intensively other material within the same text. Thus, study-type reading is an area where variability and its determinants should be of basic interest.

4. Typographic Clues. In what ways do graphic and typographic gimmicks affect rate, and what are the limits of such an ef-

5. Concentration. There is the question of concentration conceived of as variability rather than a clinical or internal problem. What determines the rate at which someone scans a text and then "daydreams"? Do students slowly peter out in rate, or do they read at a stable speed and then suddenly drop off? Informal study at the University of Minnesota would suggest that it is extremely difficult to get data on this topic. When one asks students to examine their daydreaming, the variable vanishes. Apparently, when one concentrates on it, it is gone. This makes for much difficulty in analysis.

Another troublesome problem with variability is that when one is oriented towards study state or status studies, one tends to design one's investigation in order to rule out variability. But there is no design that will make variability go away. It is possible to use large samples and thereby decrease variance, since variance is a function of the number of cases in the study. Or it is possible to balance out differences by counterbalancing the sequence of tests. Thus, in a test of audiovisual methods of instruction in which one needs to get both audio and visual pretests, it would be possible to give half the students the audio first and half the visual first. Does this design solve the problem of sequencing and variability? It does, if one is willing to settle for the whole group as an experimental unit. But if you are really interested in individual people and their responses, it does not. Counterbalancing as a way to remove fatigue, variability, or any nuisance variables in a status study is a little bit like a magician making cards disappear into a black box. Everybody in the audience knows that the cards are still around some place but no one is quite sure where they are hidden. The analogy holds for counterbalancing as a way to remove variance in a status study. Anybody who thinks about it knows that the variability still exists, but it is hidden, screened by a lot of statistical legerdemain. When one is interested in the status of individual behavior, one should look at that be-

havior and recognize that questions of status and variability must be handled together.

This is perhaps a strange note upon which to end a paper on status. Yet, as I have tried to demonstrate, status and variability are like two sides of a coin. Too much consideration has been given to the side of designs for group stability. We can profitably turn to the questions of individual variation. If we use our heads, we may have some interesting new tales to tell.

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Some Problems to be Faced in Conducting Research in School Systems

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AS UNIVERSITY RESEARCHERS are recognizing the value of the field setting, school systems are beginning to develop more sophisticated research capabilities. The person who attempts to conduct research in this setting faces a number of real problems, and he should be cognizant of them as he begins his planning.

Variability of problems. The problems of conducting field research will not be the same in every situation. They will vary, for example, according to the nature of the relationship between the researcher and other participants in the study. There may be a consultant-client relationship in which the researcher offers services which are actively sought. The relationship may be one of equal partners who jointly conceive, plan, and conduct the study. Or it may be a case of a researcher seeking cooperation as he pursues what are basically his own aims.

In any event, the researcher will offer information, orientation, and direction with regard to the project, and the nature of the relationship determines his difficulty in obtaining acceptance. According to the situation, there will be varying needs for clarification and elaboration, and for the participants' own opinions and suggestions to be sought and acted upon. The researcher is the person who must judge the type of relationship involved, and determine accordingly the extent to which participant involvement must be sought. This is a critical matter, for, as will be seen later, lack of participant involvement can be fatal to a project.

Research projects also differ accord-

ing to size, duration, complexity, and abstractness. Those which are larger, of longer duration, more complex, and more abstract are generally more difficult and present more problems.

Focus of this paper. The author was charged with speaking about problems of conducting *reading* research in school systems. These problems are, in the author's opinion, no different from those encountered in conducting any other type of research, and so the general approach has been followed.

Technical problems of research design are not considered. The researcher must identify meaningful objectives, of course. He must specify his variables precisely and find acceptable ways of operationally defining them. He must choose appropriate research methods, and he must take care to assure internal and external validity in his design.

The use made of results is also not considered in this paper. Involved here is the diffusion-dissemination adoption problem. Ways must be found for research results to affect educational practice, or the whole research enterprise is nothing more than an academic exercise. This, however, is a matter different from conducting research.

The focus here is on problems likely to be encountered in actually conducting a research project. This is "middle" ground, between the initial problem definition, design, and planning stages and the final analysis, interpretation, reporting, and use stages. As it turns out, most of the problems encountered in actually conducting research involve interpersonal relationships.

Basic problems of rapport and understanding

Meeting individual needs. Those conducting educational research in the field setting are often puzzled to find people "out there" do not whole-

heartedly support their activities. They are shocked when they sometimes find themselves actively opposed. This almost always happens because they have forgotten the basic principle that every human being has needs which he seeks through his own behavior to satisfy and an ego which must be gratified and defended.

This is true of the researcher who is almost certainly attempting to satisfy some of his basic needs through the project he is attempting to conduct. His enthusiasm for his work is not difficult to understand. The participants have needs too, and it is often unclear to them what they have to gain by doing what the researcher asks. In fact, not only do they often fail to see anything in it for them, but they perceive the research project as a threat. In this case, their overt or covert opposition is assured, and the project is almost certain to fail.

In most research projects, the active participants—teachers, children, principals, parents—will be asked to behave in certain ways that they would not have behaved otherwise; they will be asked to do some things differently from the way in which they would have done them. Very often they will feel that they already knew the best way to proceed, and that what they would have done in ordinary circumstances is preferable to what they are being asked to do. Their professional judgment and self-perception are at stake. Furthermore, behaving in unfamiliar and perhaps alien ways requires considerable effort. A lot is being asked of them, and, like the rest of us, they are not likely to give something for nothing.

The researcher who forgets the needs of participants is asking for trouble of an insidious nature; even if his project is ostensibly accepted, his directions and suggestions are likely to be ignored, so that his independent variables are in essence meaningless.

Getting rapport at the start. Before any active research begins, a climate of acceptability and of cooperation must be established at all levels. This can only be accomplished through meetings with all persons involved—teachers, principals, parents, and central administrators. In a large system like Philadelphia, arranging for such meetings is very difficult. Teachers are under a union contract and must be paid handsomely for any overtime activities. Principals have many complex problems with which to deal and are harried. Central administrators, especially the high ranking ones, are very busy and difficult to contact. Trying to arrange the necessary meetings will be frustrating for the researcher (his ego strength must be great), but he cannot hope to succeed without establishing rapport and the desired climate before the project begins.

In the preproject communications, the researcher will need to establish the legitimacy of his work. At this time, the real need for the project and for the results it is designed to produce must be made clear. If this can be done, part of the ego gratification problem of participants will be solved. Most practicing educators are genuinely interested in doing the best they possibly can for young people; they are bound up in making the educational enterprise succeed. The researcher has the problem of convincing practicing educators that the project he proposes will contribute to the instruction of boys and girls.

Making successful compromises. No research project in the schools can be perfect in the eyes of all concerned. The research specialist will tend to be quantitatively oriented, and he will be concerned with the technical aspects of the situation. He will consider internal validity imperative, and will speak of random selection. He will concern himself with control and with attributing variance to its proper sources.

He will know that the study cannot succeed unless these matters are attended to.

Many of the researcher's desires, however, will conflict with what the practicing educator wants. The educator will have problems of scheduling, of pupil transfers, of staff withdrawals and absences, of producing as much instructional time as possible in a busy schedule, of autonomy and professional latitude. The practicing educator will not be research oriented and will probably have little in the way of a research background. He will not be sympathetic with controls, especially if the reasons for them appear to him to be hazy, and he will react negatively to measurement which does not seem directly related to his immediate instructional goals.

Thus, by background, training, interest, and experience the researcher and the practicing educator will approach problems from very different points of view. In fact, everyone concerned with a project—central administrator, principal, teacher, parent, researcher, curriculum specialist—brings an outlook that is unique. Divergent views are the norm rather than the exception. Every one of these people has concerns which are legitimate and which must be considered.

There must inevitably be some compromise. Many of the demands are incompatible, and an ideal solution, in which each protagonist is fully satisfied is impossible. The trick, from the researcher's point of view, is to find the compromise which damages the project as little as possible—to come up with a design which, though imperfect, still produces valid information and is still worth the time, effort, and expense. Making compromises is one of the really difficult problems the researcher faces, and it requires great skill in both human relations and in research design.

Since give-and-take is required by

all concerned if any viable solution is to result, mutual trust and a fully cooperative effort are essential. This is a doubly difficult problem because the major burden here is often on the researcher.

Problems of communications

Keeping participants informed.

Once the preliminary steps have been taken, the researcher is ready to begin with the more active stages of the project. He is ready to introduce experimental treatments according to his design, to prepare measuring instruments, and to begin collecting data. In all of his activities, he is still directly dependent on the full cooperation of everyone concerned, and so he still has major problems of interpersonal relationships. To solve them he must build and maintain an effective two-way communications system.

Participants must be kept regularly informed of project activities and of progress being made. They must be regularly reminded in an acceptable way of their responsibilities and of the behaviors expected of them in the immediate future. They must know when events are scheduled and must see their own activities in the context of the total project. All of this must be done so that rapport is maintained and participants continue to identify themselves with the project and its objectives.

Saying what is intended. Sometimes problems develop because messages say different things to different people. What seems to the writer a clearly worded and concise document may well be incomprehensible to the person for whom it is intended. This can happen because the writer is too close to what he is writing and lapses into esoteric and assumptive language without realizing it.

On the other side of the coin, the opposite must be avoided; that is, the

writer must not "talk down" to the reader by being overly precise and repetitive. This can be insulting and can discourage rapport.

The problem of how to get the intended message across without talking down is a difficult one. One approach is to meet with a small group which is representative of the intended audience. The problem can be discussed and the help of the small group enlisted. Many excellent suggestions can be gained this way.

Keeping researchers informed. For communications to be effective, they must be two-way. Nothing will cause participants to lose interest more quickly than the belief that their own ideas and suggestions have no standing. They must be able to communicate with the project administrators in an effective manner.

From another point of view, it is absolutely essential to get feedback from those in the field to be certain that the designated activities are being followed; that is, that the independent variables are being operationally defined as intended. The researcher who gives instructions but fails to keep close check on what actually happens is courting disaster. Participants may not have understood clearly what he meant, or the procedures he has designed may not be feasible in some way, or, in spite of good intentions, participants may simply get involved with other things and fail to behave as intended.

Feedback may play another important role. Seldom will the curriculum materials and the instructional techniques being researched be perfect, and changes may be needed while the project is in progress. Making changes during the course of a project violates the classical experiment model, of course, but may be a necessary trade-off to assure that children receive the most effective instruction possible.

In determining exactly what product results mean at the end of the study, and in deciding what improvements should be made in the materials or techniques, interpretative information from participants is vital. This can be obtained through interviews and questionnaires and through observations in the classroom. Observations often supply very valuable information, but they are quite threatening and cannot be used successfully unless the problems of rapport, mutual trust, and identification with the project have been solved.

Another kind of feedback which is more mundane but just as vital is needed data on study subjects. Certain kinds of demographic and other descriptive data will be needed, as will results obtained through formal measurement. Steps must be taken to assure that this is collected in a timely and accurate way. What comes back may otherwise be "garbage."

Relations with teachers

Almost any field research project which deals with instruction will involve classroom teachers. Teachers are on the firing line in the educational enterprise; they are the ones who deal directly with children. A substantial portion of instructional research is concerned with the way they behave in the classroom. Very often they can make or break a research project.

Teachers in a project need a lot of information. Most of them have a very limited background in research, and they do not clearly understand the connection between research and the improvement of instruction. They do not understand the weaknesses which lie in subjective judgment when used alone, nor do they see research as the best way to settle honest differences or assess alternative approaches which appear equally effective. Without considerable in-service training, they will

fail to understand why they are being asked to behave in predetermined ways, why their activities are to be observed, why exact conditions must be imposed during measurement, and why data must be accurate and complete.

Sometimes teachers may perceive a research project as a threat to their job security. Each revolution in educational media seems to be accompanied by assertions that the teacher will be replaced. Such claims have been made for instructional films, television, teaching machines, language labs, and computer assisted instruction. The fact is that the teacher's job is not threatened but enhanced by the addition of powerful new tools. It is important to the researcher to make this understood by teachers.

The time of teachers must be carefully considered in planning project procedures. They already have a great deal to do in managing their classrooms, keeping up with new developments, attending many kinds of meetings, and handling the plethora of clerical work that school systems tend to thrust upon them. A research project can well be seen as something else which adds to this load and which simply makes their job more difficult.

After the project begins, there is still the major problem of keeping teachers informed of what they are to do. They must understand the method they are to follow and must be given full details on their activities and on deadlines to be met. Projects have failed simply because teachers did not understand what was expected of them.

Relations with principals and with parents

Working with principals. The principal is the key administrator in each school. He will ordinarily not be as directly involved in instruction as

teachers, but he will still play a decisive role in a research project. The researcher must communicate with him, bring him into the planning and decision-making, and seek to understand his point of view.

The commitment of the principal to a project is usually necessary. In fact, a principal will often have veto power relative to participation of his school. A principal is faced with many seemingly conflicting and legitimate demands for his own time and for the time of his teachers and pupils, and the researcher cannot ignore this conflict. The principal must be shown the desirability of devoting time to the research enterprise.

Working with parents. In many projects, there is a need for informing parents of the basic nature and value of the research. Parents have a natural disinclination to have their children used as "guinea pigs," and they need to be assured that no harm can result. Instructional methods being tried experimentally are thought to be superior to those used regularly, but this point is a bit subtle. The word *experiment* has negative connotations in this context, and parents will tend to be frightened by it.

Sometimes projects involve parents actively. In this case, securing participants and keeping them involved is likely to be quite difficult. It is difficult to contact them initially. Further, there is a tendency for them to be fearful of what might happen. Most parents have an intense interest in helping their children learn and do well in school, but they are often frustrated in their attempts at assistance. Finally, there will be other conflicting demands for their time.

A willing parent organization such as the PTA can provide tremendous assistance to the research project in this case. A parent organization can be the means through which participants

are secured, information exchanged, and necessary details worked out. In fact, if parents are to be actively involved, it is wise to have a committee from the parent organization involved actively in the planning of that part of the project.

Procedural problems

Monitoring procedures and making adjustments. This paper has been concerned almost entirely with interpersonal relationships and with related problems which must be overcome for good research to be done. This emphasis has been deliberate because, in the author's experience, this is the chief difficulty in actually conducting field research.

It goes without saying that procedures outlined for the project must be followed. If adequate prior planning has occurred, a precise schedule of project activities and events will have been established. The project must be monitored in light of this schedule so that potential trouble areas can be recognized early and corrective action taken. The project will rarely come off exactly as planned. One of the secrets of successful field research is maintaining the flexibility to make adjustments while preserving the essence and validity of the study.

The problem of monitoring or getting feedback on the behavior of project participants has been alluded to earlier. If instructional procedures are to be evaluated and/or compared, then results have meaning only to the extent that designated procedures are actually used. The researcher cannot afford to depend on good fortune or luck on this point; rather, he must systematically check what participants are doing and be prepared to deal with departures from intended activities.

Attending to logistics. Logistics will be a problem in any field research, and as projects become larger and

more complex, problems of logistics increase. Materials must be developed, reproduced, and delivered to participants by predetermined dates. Measuring instruments must be developed, reproduced, delivered, administered, collected, and scored. Data must be collected, processed, and analyzed.

The matter of scheduling has previously been mentioned, and it is a vital point. Logistics problems simply cannot be solved unless project activities and events are carefully defined and scheduled. This is largely a matter of prior planning, and with more complex projects, some management system such as PERT is almost a necessity.

Choosing and maintaining a sample.

A particularly vexing problem in conducting research in the schools is obtaining a suitable sample. The researcher will ordinarily be concerned with the behavior of individuals, and he will therefore want to select his sample by individuals. He will also know that randomization is essential in producing valid results. Ideally, he should randomly select his sample from the total population and randomly divide the sample into various comparison groups.

He will find in practice that in most instances he simply cannot select randomly by individuals. Too many practicalities of school operation mitigate against it. The children must be assigned to certain classes and certain sections for a variety of reasons. The researcher, if he is relatively fortunate, will be able to use complete classes as the sampling unit. He may find himself forced to sample by complete schools.

The latter approach is certainly to be avoided if possible. The n will be quite small in such cases, and confidence intervals will be unacceptably wide. Nevertheless, there are times when this approach cannot be avoided.

Most researchers in this situation will sample by whatever unit is forced upon them, but will analyze data as though they had sampled by individuals. From a purely technical point of view, this procedure is incorrect. The difference it makes practically is unknown at present, and the effects are debatable. More information on this point is needed.

Another problem in any project which extends over any length of time is differential mortality in the sample. There is certain to be movement of pupils into, out of, and within the school system. Thus the sample that one begins with will not be the sample he has at the end. If mobility affects all groups equally, then it is not a problem. It may not affect all groups in the same way, however, so that the technical considerations satisfied in the original selection are disrupted. This problem increases as the duration of the study increases. Statistical correction procedures such as covariance can help here, but they do not really solve the problem.

Conclusion

This paper represents an attempt to outline the major problems a person will face in conducting research in the schools. Many of them apply in any field research setting. They make field research difficult, but they are no cause for undue despair.

The implication should be clear that very careful preliminary planning is essential to this type of research. It is also clear that a lot of time in meeting and communicating with project participants is recommended. The amount of time suggested in this paper for such purposes may seem excessive to the casual observer, but it is not. A project in the schools cannot succeed fully without the commitment and cooperation of every person concerned.

Evaluating Readiness for Developmental Language Learning: Critical Review and Evaluation of Research

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IN SURVEYING any field of inquiry, it is helpful to begin by locating those central questions that characterize the field and give meaning to the smaller subsidiary questions that are the focus of individual research projects. In the field of readiness, this preliminary orientation is particularly crucial, for the point of the inquiry, the purpose of the research, is widely misunderstood. It is unfortunate that this should be so, for readiness is a concept of transcendent importance in education, and misunderstanding of it has led directly to unfortunate classroom practices.

This misunderstanding of the concept of readiness is the more surprising since the concept is a very simple one. The child is in school to learn; what and how is he ready to learn? The notion of readiness is no more than that. The question can be asked another way: "Is the child ready?" This form of the question is legitimate, but it presupposes that we have something specific that we wish the child to learn, that is, something specific that we wish him to do in the way of a learning task or experience. We want to know if he is ready, if he is *prepared*, for this experience. If we conceive of our methods and curricula as fixed, it is a good question to ask.

Perhaps it is our human tendency to categorize and simplify that makes us ask the readiness question this way: "Is the child ready?" But we should realize that we cannot answer this question unless we can also answer in rich detail the question, "Ready for

"Is the child ready to learn to read?" This is a foolish question, for the child does not learn to read in an instant. It is a process that takes some time for any person at any age. Part way through the process he is ready to profit from experiences he would have found meaningless at the beginning.

We might then ask, "Is the child ready to begin to learn to read?" Does that question make sense? It makes sense only if we have specified precisely how reading will be taught—where we are willing to start and what possible sequences of learning experiences the school is willing to make available to the child. A particular child may be unable to hear that there are three phonemes in *cat*. He is surely not ready for some of the reading programs that are based on the complete phonemic analysis of words. This child may, however, be capable of discriminating and blending certain sounds, and thus he may be ready to learn the sounds corresponding to some letters and to synthesize some words. Or he may be capable of learning to discriminate a few whole words and thus may be ready for some whole-word discrimination training, if the teacher wishes to begin in that way.

I said a moment ago that if a child could not hear the three phonemes in *cat*, he is not ready for some reading programs that require the complete phonemic analysis of such words. But perhaps he is capable of learning to segment speech sounds. Once he has made some progress in segmentation, he may then be ready for the training in the phonemic analysis of words. In any case, he is ready on some level to begin to learn to read.

What I have been saying has been said repeatedly before. Gates (5) wrote substantially on this same thing over thirty years ago. [See also (6).] Many others have said it since.

Cronbach (3) gives an excellent treatment of the concept of readiness in his elementary educational psychology text. What they have all said in different ways is that readiness is not all-or-none; it depends on the method and materials that will be used and on the level at which instruction will begin.

Maturation factors are, of course, important in readiness, as are inherited differences in intellectual traits. But the child's experiences up to this point are also a vital factor, and the experiences he will have had by tomorrow depend upon the teacher. One is tempted to say that nearly every six-year-old is ready to learn *something* about reading if this *something* is carefully selected according to his abilities, and if he is guided by a compassionate teacher. The teacher, knowing the eventual goals of education, should ask, "What and how is this child ready to learn?" She should know that when you teach a child a little, he is then ready for a little more.

What readiness research should be

With this understanding of the meaning and importance of school readiness, let us now look at the research on readiness for developmental language learning. I will focus on readiness for reading, since the majority of research on readiness has had this focus, and this field illustrates well the nature of the problems in such research.

This point of research on reading readiness is to understand better the nature of the process of learning to read and to learn how to make helpful predictions. We would like to be able to say such things as: "This particular six-year-old has an immediate memory span of at least five letters, he is able to discriminate all the letters except *b*, *d*, *p*, and *q*; he can segment the sounds in words that are up to four phonemes

, so long as the words do not con-

tain a nasal consonant or a semivowel; he can already read the common articles and prepositions by sight; he has at least the following specific words in his speaking vocabulary;" and so on. "We would therefore predict that he will make good progress on learning these particular discriminations, or that he will be able to read this particular easy story, or that he can learn task *x* easily if he first learns task *y*."

If we could make predictions of this sort with a fair degree of success, we would have achieved a far greater understanding of the process of learning to read than we now have. It will be clear to anyone who is at all acquainted with the research on reading readiness that most of this research is not oriented toward producing knowledge that will make predictions of this sort possible. Research that would produce such knowledge would be very detailed. We need it.

Let us look at what readiness research *would* be if it were guided by the question: "What and how is the child ready to learn?"

Readiness research based on this question would begin with a rather complete assessment of those abilities or skills judged directly relevant to some very specific segment of early reading instruction. The nature of the abilities assessed and the detail in which they would be studied would need to emerge from the research, but might be something like the abilities mentioned in the example of prediction given above. The segment of instruction would be specified in about the detail that is appropriate for a teaching machine program. The children who had been assessed would then receive the segment of instruction, and their successes and the points at which difficulties occurred would be studied. A new appraisal of each child's readiness would now reflect his initial abilities plus what he has just learned, and the children would embark on a new seg-

ment of instruction. In other research, different segments of instruction would be tried, perhaps in different orders, and the nature of the individual segments would be modified.

This procedure is similar to the theory of programed instruction. It is quite different from much of the present practice of programed instruction. It relies far more on prior evaluation and is focused on the qualities and prior learnings that make for success. It does not assume that all children will learn equally well from the same instructional sequence; even the most carefully programed experience will be remembered better or generalized and applied more intelligently by some children than by others.

Such a program of research would be extremely time-consuming, but each new study, each bit of new information, would be a lasting contribution that would add to the total picture—something that cannot be said for many of the more global studies of readiness today.

What readiness research has been

Past and present research on reading readiness has been too much influenced by the less cogent form of the readiness question: "Is the child ready to begin to learn to read?" When the question takes this form, it is logical for research to take the form of assessing the child's abilities at the beginning of the first grade and comparing these with his ability to read a year or two later. Some of this work on prediction has been sound and valuable. A certain amount has been learned about the characteristics that are generally important predictors of the child's success in learning to read.

If we look at the general nature of the results of past reading readiness research, we see that many of the findings can be quite succinctly summarized. As is generally true in studies of prediction, the best predictors tend

to be those tasks that are most similar to the criterion, in this case, tasks that are similar to reading itself. For example, later reading comprehension seems to be predicted better by visual discrimination of letters and words than by visual discrimination of geometric forms (1).

Why tasks that resemble reading can better predict reading success

It is important to realize that there are at least four reasons for the predictive validity of the tasks that closely resemble reading. The first reason is simply that, to the extent that the criterion and predictor tasks are similar, they are likely to require the same abilities. If the predictor task is similar to reading, abilities required for success in reading will be measured by the predictor, even if it is not clear to us precisely what those abilities are. This possibility implies, again, the importance of using more detailed, longitudinal readiness research of the sort described earlier. This type of research can clarify the nature of the abilities involved, develop better measures of them, and experiment with direct teaching of these abilities.

The second reason for the predictive value of tasks similar to the criterion is that they measure the past influence of environmental and motivational factors that are likely to continue to influence the further acquisition of reading skills in a similar way. Thus, the kindergartener who has the curiosity to puzzle about and inquire about the meaning of printed words on cereal boxes, is likely to be led by similar enthusiasms through further successful reading experiences during the primary grades. If a child has parents who have stimulated his curiosity about printed words and who have applied some of the answers that enable him to name the letters or some letter sounds when he enters first grade, then these same parents will probably

continue to provide the parental interest, the encouragement, and probably even some supplemental instruction that will foster continued progress in the development of reading skills through the school years.

Writers have given clear recognition to the importance of the background—helpful and otherwise—that the child brings to school (8). The continuing influence of the same environmental factors has been relatively underplayed. Schools tend to receive the entire blame for the relatively slow progress of children whose parents do not provide an environment that reinforces and supplements school instruction. Likewise, in educationally oriented communities, the school may take exclusive credit for superior achievement that has been produced in no small measure through instruction in the home.

Background factors may be important in another way that forms a third process which makes reading-like prediction tasks effective. When a child comes to first grade with some of the rudiments of reading skills, he finds the early lessons in reading easy to master, and both he and his teacher are likely to become confident of his abilities. The teacher will, quite reasonably, regard him as able and interested, and will confirm and reinforce his favorable attitudes toward school-work.

Fourth, what a child already knows in part, he cannot fail to learn. If he knows some of the basic ingredients of reading skill, he cannot, through accidents of poor teaching or absence from school, fail to learn these rudiments on which later progress will depend.

Each of these ways in which the relation between prediction and achievement of reading success is effected is worth thinking about in terms of its implications for teaching. It is not possible to discuss these implications, but careful consideration of these

four kinds of influences will suggest several helpful procedures and orienting attitudes that the teacher might espouse.

Other predictors are needed too

I have stressed the predictive value of tasks that resemble the criterion, but it is also important that we should continue trying to find new, less obvious, and more basic types of prediction tasks. Examples of promising types of predictive measures that are less obviously similar to the criterion of reading are the measures of auditory-visual integration and visual-motor coordination which have recently received much interest. The thoughtful analysis of the role such functions play should lead to the prediction of specific aspects of reading or specific stages of learning to read in which those functions should be particularly important. This type of theoretical development should, in turn, lead to the experimental validation of the predictors in their specific roles. From a practical standpoint, it is apparent that the more basic types of prediction task may be particularly valuable in planning instruction for children whose home background has not prepared them for immediate success on complex predictor tasks that resemble actual reading.

I implied earlier that, in spite of the considerable volume of research on all kinds of prediction measures, we do not yet have a very clear understanding of the specific roles and the interactions of the various predictors; neither has success at prediction been particularly good (9). Robert Dykstra (4), in a paper on the use of reading readiness tests, has also pointed out that the reliability of subtest scores on these instruments is frequently so low as to make their use for diagnostic purposes questionable, and that certain individual subtests typically predict

later reading achievement as well as the entire readiness battery.

Shortcomings of readiness research

Let us now consider some of the specific characteristics of reading readiness research that have contributed to this rather poor record.

It is quite natural that research guided by the question, "Is the child ready?" should frequently fail to deal adequately with the method and materials that the children were required to be ready for. Sometimes in prediction studies the teaching method to which the results apply is described in a general way, but more often, it is not. Even when teachers profess to be using a particular approach, their actual classroom behavior may not conform to it (2). If the teaching method is not specified, and if the number of teachers in the study is small, it is difficult to interpret the results, for the results may apply principally to children taught by the unspecified method that was used. When a large number of teachers using different methods is involved, as is often the case in the development of published reading readiness tests, the main predictive factors that are isolated may be taken as being generally important. It must be remembered, however, that one or more of these factors that are generally important may not be important for some particular teaching method.

Another factor making some of the literature on readiness for beginning reading difficult to interpret is that inferences about readiness are often made retrospectively. Children in the third grade, for example, may be tested for visual perceptual abilities and these scores on visual perception correlated with their present reading ability. If those who read poorly have poor visual perception, it is often inferred that poor visual perception has interfered with reading achievement

from the beginning. Conversely, if no relation is found between visual perception and reading achievement in these third grade children, it is then often inferred that problems of visual perception were not a factor in the developmental history of current reading difficulties.

The problem with many retrospective inferences, of course, is that the present status of such factors as visual perception is no certain indication of their status at the time that reading instruction was initiated. There is no reason to suppose that third grade children with poor reading ability, but with good visual perception, necessarily had well developed visual perception abilities in the first grade. This problem has been discussed before in relation to specific factors such as auditory perception (10), but we should realize that it applies generally to many factors that can influence the growth of reading. A child may be quite secure and well adjusted in the fourth grade, but may have been deeply disturbed by the birth of a younger brother at the time he was receiving his initial instruction in reading.

Positive relations in the later grades between reading achievement and other traits can often give valuable clues as to traits that should be studied longitudinally for their effect on reading growth. The lack of a relation in the later grades is in most cases, no proof that the measured trait was not influential at an earlier stage.

It should be noted, too, that correlations between test scores can change systematically with age simply as a result of one or both of the tests becoming more or, usually, less appropriate for the older children. In some recent studies of auditory and visual development, for example, what was interpreted as a decline with age, in the relation between measured variables, should clearly have been attributed to ceiling effects, as at least one of the

tests became progressively easier for the older children.

Misleading interpretation of data

As this last example suggests, careless interpretation of correlational relationships has hindered our understanding of the factors that predict success in reading. In fact, much of the muddle can be described in these terms. It should be helpful, then, to delineate some of the most common shortcomings of interpretation.

Reading is a very complex perceptual and intellectual task. A variety of perceptual and intellectual skills that get proposed as predictors, turn out to be moderately correlated with it. Until recently, most investigators were content to show that some new variable predicted later achievement above chance level, or predicted about as well as some established predictor. In many cases, further study of the data would show that the new variable and the established predictor are also highly correlated and that, as far as prediction goes, the new variable makes virtually no independent contribution. There is an obvious need for some adequate factor-analytic studies that will begin to give us some indication of the independent dimensions of the many kinds of test scores that predict success in beginning reading. Once some of these dimensions are established, their respective contributions can be studied, and we can attempt to devise ways of measuring them more directly.

Many of the recent studies of reading readiness have taken account of the interrelationships between predictors through the use of multivariate regression analysis. When the goal is to maximize prediction from a given set of tests, or to study the relative independent contributions of these tests to prediction, multivariate regression analysis is indeed an appropriate technique. This technique assigns relative

weights to the different predictors that are used in a given study. These weights indicate the independent contribution to prediction that each predictor makes, and best prediction is achieved when the standard score on each predictor is multiplied by this number before the scores on the various predictors are added to give an overall prediction score. In most cases, the usual model is probably suitable, although there may be some instances where interaction terms should be considered. It is possible, for example, that interaction of auditory and visual perceptual abilities is an important term. Surely, in the extreme cases, where either auditory or visual perception is extremely poor, the weight given to the other must be affected.

The multivariate regression model is not the most appropriate one for every purpose, of course. A disability that occurs only rarely may be, for the child who has it, a severe handicap in learning to read, but this rare disability will not be given much weight by the typical multivariate regression analysis.

The use of multivariate techniques should have speeded our understanding of reading readiness predictors, but this achievement seems to have been delayed by our lack of understanding of the multivariate techniques themselves.

First of all, there is the problem of sampling error. We should realize that the weight that is eventually assigned to each predictor depends on the intercorrelations among all the variables involved, and that it takes a large n to produce reasonably stable correlations. The weights that are derived from one sample, will not, in general, be the optimal weights for another. The general tendency has been for investigators who would ordinarily be scrupulous in recognizing the importance of sampling error to speak of sample regression weights as fixed

numbers and to interpret with seriousness even minor differences between the weights for different variables. It should be clear that we should be cautious about discarding a particular test as relatively useless simply because it does not achieve a significant weight in a particular regression study.

In addition to the problem of sampling error, there is the problem of the relative reliabilities of the particular tests used. In exploratory studies, the individual tests may vary considerably in reliability. One test may be a carefully developed, standardized test, another may be relatively short and somewhat crudely put together for the purpose of the specific study. The relatively low reliability of the shorter, rough-and-ready test will limit its correlation with the criterion and also its correlation with the other predictors. Such a test may receive a low weight in a multiple regression equation primarily as a result of its low reliability. Improving the reliability of such a test is often a simple matter, and this improvement may result in the assignment of a notably higher regression weight. For example, several of the experimental tests of auditory discrimination, auditory-visual integration, and other such functions that have recently been tried as predictors of reading achievement, have been just too easy to be reliable measuring instruments for beginning first graders. Their reliability could probably be improved by increasing their difficulty to a suitable level, a change that would increase their regression weights in most of the studies in which they have been included.

It would clearly be helpful if researchers would report the reliability of the predictors involved. Many current studies do not even include any attempt to evaluate reliability. It would also be helpful, in the case of factor analytic and multiple regression studies, if journal editors would pro-

vide space for, and encourage, the publication of complete intercorrelation matrices. Where theoretical rather than practical considerations are paramount, it would be desirable to supplement the analysis with factors or regression weights based on intercorrelations that have been corrected for unreliability. This policy would reduce the likelihood of discarding promising variables simply because the first try at measuring them was relatively unsuccessful.

Related to the problem of discarding promising variables because of readily correctable low reliability is the problem of discarding *constructs* because the particular test that is used does not, for some reason, give a valid estimate of it. Of course the reverse of this problem is also common. It is well recognized, for example, that in factor analytic studies there is a great temptation to look for some factor that can be labeled with the name of the investigator's pet construct.

Confusion from test labels

The last of the obstacles to progress in reading readiness research that I will discuss is the problem of mislabeled tests. We should not be misled into unproductive research by accepting, at face value, the name given by previous investigators to any particular test. In one recent study, a letter naming test was labeled as a visual discrimination task. Undoubtedly letter naming involves visual discrimination, but it surely also involves extended past learning of specific stimulus categories and appropriate responses. The new Gates-MacGinitie Readiness Skills test (7) contains a subtest called Visual Discrimination that might more properly have been called Visual Discrimination of Words, if that name did not also have other established uses. The IRA might play a helpful role by developing a taxonomy of test tasks and corresponding nomenclature.

One specific difficulty with test labels is that many tests with other names are, in fact, primarily tests of memory span or tests of ability in following directions. A test that is called auditory-visual integration, but that makes considerable demand on memory or on ability to understand verbal directions, will correlate fairly well with reading achievement whether auditory-visual integration is itself a good predictor or not. The actual nature of the predictor can of course be better understood when its correlations with several other measures are known. In interpreting any reading readiness research, there is no more important rule than to bear in mind the actual tasks that the children were given, regardless of the names that the investigator has given those tasks.

Summary of recommendations

I have made a number of general criticisms of current reading readiness research. I have purposely not singled out particular studies. My aim was not to find fault with past work, but to encourage more informed and discriminating evaluation of past and future readiness research, and to encourage more meaningful future research by pointing out both past pitfalls and more appropriate goals.

Let me summarize the cautions I have urged for interpreting readiness research, and the suggestions for a future redirection of such research.

First, it is hazardous to interpret the findings of readiness studies when the teaching method and materials are not specified, particularly when the sample is small. Second, retrospective inferences about readiness can be misleading, especially in the case of inferences of no relationship. Third, a number of faulty interpretations of correlational relationships need to be avoided:

1. Differences in correlations due to differences in the suitability of the test for different groups of children, or dif-

ferences in correlations between predictors and a criterion due to differences in test reliabilities, should not be taken as necessarily implying differences in the relationships of the underlying variables.

2. It should be recognized that performance on many different tasks has some relation to later reading achievement. The interrelations of the tasks need to be studied and the major independent predictors identified. The actual nature of the tasks should be analyzed, and further research should be based on this analysis, not on the names that happen to have been given to the tasks.

3. The influence of sampling error in multivariate analyses should be taken seriously, and particular predictors should not be selected or rejected without taking sampling error into account. Sample size, which influences sampling error, should be commensurate with the nature of the variables and the purposes of the study.

Careful attention to these cautions in readiness research would greatly improve our understanding of factors that are generally predictive of achievement in beginning reading. Fundamental progress in prediction and in sound understanding of the process of learning to read, however, hinges on a reconceptualization of readiness research that is long overdue: The question underlying explorations of readiness should become, "What and how is this child ready to learn?" Only when we have learned to ask the right question will we begin to get more meaningful answers.

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Early Childhood Education

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THE RESEARCH AND DEVELOPMENT CENTER, University of Georgia, was funded by the U. S. Office of Education in 1966. Its purpose is to develop a comprehensive preprimary instructional program. The Center's commitment is to keep selected groups of children together from age three through twelve so the concept of continuous, structured stimulation may be fully implemented.

The immediate thrust of the Research and Development Center has been to find the most efficient way to assure success at the first grade level.

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To this end extensive units have been developed in a direct effort to stimulate early achievement-oriented behaviors, especially reading, in the project children. Great care is taken to assure a successful, non-forced experience.

Research reports as late as 1965 indicated that an early start in reading tended to "wash out" and to adversely affect other areas of the child's development and failed to produce any real difference between children, as the child moved through the primary grades (10, 13, 19, 20, 24). An examination of the literature reveals that the sketchy research showing the "wash out" or "wilting" effect on the children who have been stimulated to read early indicates a singular lack of continuation of these stimulation concepts into the primary and/or intermediate grades. The Denver Study (12) was one of our better controlled longitudinal studies. The emphasis was on an early reading start in kindergarten, and continuation of the stimulation through grade five, for the experimental group. One control group had the same early start but dropped into the standard curriculum at first grade. A second control did not have the kindergarten start but began the stimulation program at first grade. The third control group began first grade in the traditional structure and continued there. The results show that the experimental group's kindergarten gains were maintained through the fifth grade and that gains made in kindergarten could not be maintained if not followed by an adjusted, accelerated program.

Dolores Durkin (6) whose intensive efforts to follow a sample of "early readers" not stimulated to read in a formal preschool setting, but whose home environment appeared to lead them to read, expresses the following ideas about her data: 1) After six years of instruction early readers maintained their superiority in reading over classmates of the same mental age

who did not read until first grade. 2) A bored attitude and the confusion predicted for early readers taught by nonprofessionals did not materialize as problems.

Thus, two rather thorough research studies tend to disprove all three doubts about early reading outlined earlier.

Most reading professionals agree that very young children can be taught to read and comprehend at a very young age. Theodore Clymer (5) states the expressed position of a number of reading professionals when he stresses the need for further studies that investigate later benefits shown by children who are taught to read early.

The Research and Development Center is systematically teaching the beginning reading skills to all three-, four-, and five-year-olds, a total of 350 children, in two Georgia research centers located in public school systems. Intensive testing is being undertaken that will help to answer Clymer's call for a definition of the quality and type behaviors, other than a higher achievement score, in which early readers show a superiority.

Achievement results

After five months of consistent stimulation in reading, writing, and oral language behavior, the Research and Development Center project children showed the following results on the Jastak Wide-Range Achievement Test. Four-year-olds in the advantaged group had a mean achievement score of seven months. Five-year-olds in the advantaged group showed a mean achievement score of thirteen months, and five-year-olds in the disadvantaged group had a mean achievement score of ten months. Only four of the 48 advantaged and five of the 110 disadvantaged five-year-olds could not score on the test. The reading performance levels of the groups, advantaged and disadvantaged, are quite similar with

the children able to word-call and comprehend on a range from the first preprimer through the 2¹ reader. Most children are functioning in the second preprimer, with very few, approximately nine of 170, unable to read any works. Mean Binet IQ for the advantaged five-year-olds is 113, and for the disadvantaged five-year-olds, 95.

Indeed, evidence from other preschool programs for the disadvantaged child report similarly striking results. Robinson's (18) North Carolina project reports that a sample of the three-year-olds are reading simple sentences with comprehension. Bereiter's first class of 20 extremely disadvantaged children, after two years of intensive preschool, scored an average growth rate of one and one-third months for each month of instruction, evidenced by a mean Jastak Wide-Range Achievement Test score of 2.6 on entry to first grade. Englemann reports they have maintained their initial gain in the conventional classroom and achievement test results show them scoring significantly higher than their classmates. Weikart (25) found very positive achievement changes in his Perry Project children who had two years of preschool. On completion of their second year in the traditional curriculum he found his sample to be some 26 percentage points above nonstimulated, disadvantaged children from the same population subsample. Spankling (2) works with quite severely deprived and handicapped in the Educational Improvement Program at Duke. Many are the most difficult to move forward in the achievement dimension. After one year of preschool stimulation, the project children entering first grade achieved significant gains on the Metropolitan Readiness Test and a test of linguistics skills. Nimnicht (16), working with bilingual children in Colorado and California, achieved a mean readiness test score at the 70th percentile, while a socioeco-

nomically comparable control group had a mean score at the 30th percentile.

Theory and preschool programs

In the 20's and 30's we were looking at the body; then along came Freud's ideas in the late 30's and everyone began to turn to the "mind" for an explanation of why children react in such different ways in response to the same stimulation. Louise Bates Ames (1) was explaining why her work as well as that of great American preschool pioneers such as Gertrude Hildreth (8), Marion Monroe (14), Arnold Gesell (7), and Louise Ilg (7) had been lost, so to speak, in the rush to bigger and better things. Appropriately, by rearranging a few words here and there, her earthy analysis easily applies to today's almost desperate search for the program among the more outstanding early childhood projects in operation across America. Let us explore some of the thinkers who have been calling us away from the "body" school of the 30's and relate them to today's preschool project designs. To conclude we shall return to the Gesell School and its relevancy to today's programs.

John Dewey's progressive school ideas emphasized the interest and effort of a child as primary motivators toward solving his own problems. His emphasis on intelligent problem-solving through self-selection of appropriate materials sounds like a male version of the Montessori approach. As Dewey's influence began to wane in the '40's and '50's there came a surge of interest in Jean Piaget (17) who wants teachers able to analyze a child's degree of readiness for a particular discovery so he may be presented an "experience" with which he can have a high degree of success. Piaget emphasizes that the reasoning processes of the child at various tasks be so laid out that the teacher can effectively re- the intellectual content and cogni-

tive abilities of the child to the demands of the task. Montessori, Dewey, and Piaget could have found a most compatible theoretical position. Many of the programs we will discuss owe much of the position they take to these three.

A disciple of the same school of psychology whence John Dewey arose, B. F. Skinner, began writing of his *operant conditioning* ideas in 1938. In 1954 he launched his programmed instruction materials in the form of auto-instructional devices and programmed workbooks (21). Few major differences between the Piaget group and Skinner appear over the basic instructional program. Both groups believe in careful sequencing of the learning activities. Where they do diverge is on several points. Piaget lays stress on peer relationships and freeplay in the learning process. He feels the need for much scope and breadth in content for the learning activities, a design not easily accommodated by Skinner's programmed materials.

Beginning in the 1960's J. McVicker Hunt (9) and Benjamin Bloom (3) reviewed the literature on intellectual development among children and proposed the guarded, but often misused, idea that sometime in the near future we may find a way to overcome low intelligence test scores among the disadvantaged by beginning in infancy to stimulate the cognitive behaviors of those most prone to suffer the cultural deficit. To some it appeared the "static IQ" idea had been thoroughly smashed and that programs could now move ahead to up the IQ test scores of groups by an average of 10 to 20 points. Briefly, I will touch on some very clear research on IQ score change. Perhaps the position taken in this paper is much too simplistic. In any event, the rapid progress we are now making in many areas of knowledge suggests we keep an open

mind about future programs involving change in IQ test score.

Also, in 1960 Jerome Bruner (7) made his now famous quote to the effect that "any subject can be taught effectively in some intellectually honest form to any child at any stage of development." Bruner also dabbled his toes in Piaget's stream by saying, "Mastery of the fundamental ideas of a field involves the development of an attitude toward learning and inquiry, toward guessing and hunches, toward the possibility of solving problems on one's own."

In today's preschool programs we can see the outlines drawn by these, and other well-known spokesmen of early childhood education. Traditional kindergartens fall in line behind the developmental sequence of the Gesell School. There are those programs like Glen Nimmicht's eclectic approach which go the way of Skinner's auto-instructional materials, but which also lean heavily on the works of Dewey, Piaget, and on Maria Montessori's "prepared environment." Luran Resnick's Preprimary Education Program (PEP) at Pittsburgh looks to Bruner and careful analysis and sequencing of the desired behaviors, but turns to the opposite pole, Montessori, and the "Prepared environment" for the other major part of her program. Unlike Nimmicht, who emphasizes that the child initiate the verbal interaction between himself and the teacher, Hesnick feels the teacher must prescribe at certain points in the curriculum by initiating the "lesson."

Bruner's strongly worded position is essentially followed by Bereiter Englemann at the University of Illinois; Aaron-Mason at the University of Georgia; Robinson at the University of North Carolina; and Spaulding, Educational Improvement Program, Duke University.

The British Infant Schools are strongly influenced by, or reflect, the

ideas of Montessori-Piaget-Dewey. Weikart, the Perry Project, is exploring Hunt's and Bloom's concepts about change in intelligence, but now indicates an interest in moving downward from his current focus, ages 3 to 5, to ages 1 to 3.

Changes in IQ

Interest in the preschool intervention program as a vehicle by which to significantly raise the IQ score of the disadvantaged child has recently received new impetus.

In 1961 the American Association on Mental Deficiency produced a consensus of reports emphasizing the value of preschool stimulation as a possible antidote for the intelligence deficit suffered by the disadvantaged child. Then, in 1964 Bloom lent the weight of his influence to this idea by emphasizing the critical value to IQ change of training before four years of age. He hypothesized that at least half the intellectual power of the child is determined by age four.

Recent studies by Kohlberg (11) and Sprigle (23) report first year gains of approximately 15 IQ points. To date, the Perry Project offers the only long-term evaluation of IQ gains, in situations where a somewhat structured curriculum has been followed. The results on a small sample of children, beginning at age four and going through the second grade, indicate the following:

1. No differences existed between the groups at the onset of the program.
2. By the end of the first preschool year the experimental group had a mean IQ gain of 12.7 points. The control group made a mean IQ gain of 7.2 points—a statistically significant difference.
3. By the end of kindergarten and at the end of first grade, the difference is not statistically significant.

4. By the end of second grade the two groups are almost identical in IQ score.

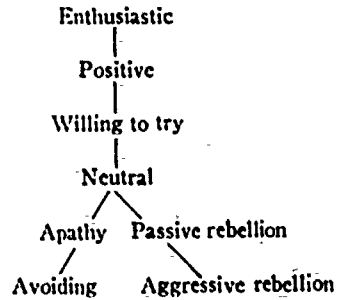
Binet data collected in January 1968, on 60 four-year-olds and 60 six-year-olds enrolled in the Intensive Stimulation program of the Research and Development Center, University of Georgia, indicate similar findings. The subjects were tested as threes and fives in January 1967. Mean gains are respectively three and four IQ points. The results reflect quite common changes and indicate that the January to January testing pattern does not pick up the low initial score and the striking upswing at the end of the year. The midyear testing shows that the first year surge is an artifact of the new experience, reflecting the idea that the initial testing does not truly measure the child's ability. January or June are more representative of the base performance level of the child.

The significant change in the preschooler appears to occur along achievement lines. Studies generally indicate that gains made under stimulation are not only maintained but, given a continuous stimulation model, increased.

The initial Binet pretesting of IQ, prior to stimulation, apparently is *not* a measure of the young child's functional level. The testing and the following stimulation period may well be viewed as a complete process aimed at moving the child forward in the following manner.

Prior to testing, the child's intellectual position is one of either avoiding behavior or aggressive rebellion toward the demands on him. A primary thrust of the initial testing and stimulation must be directed toward moving the avoiding child through the apathy stage and the aggressive rebellion child through the passive rebellion stage. This initial thrust is attempting to bring both types of preschoolers to a *neutral* emotional position. From this

focal posture the motivation efforts are now directed at moving the child to successively stronger reactions of *willing to try, positive behavior, and, ultimately, enthusiastic behavior* (22).



Once the child is succeeding at some level above the *neutral* position, and a satisfactory schedule of success and praise reinforcement is in operation, then a further IQ testing should come very close to defining the functional Intelligence Quotient. The evidence produced by Weikart and the University of Georgia testing tend to support this contention that the effects of a program of early childhood stimulation must be based on the interval of time between the first post-test and a succeeding testing, after the debilitating effects of the lack of motivation and test experience have been overcome.

The Gesell School

Arnold Gesell, Frances Ilg, and Louise Bates Ames (7) put together some rather exhaustive observational data on the reading and writing behaviors of preschoolers from ages one to five years. The data were collected on some fifty children of high intelligence from a high socioeconomic environment. The sample was followed on a longitudinal basis. Most of the sample had attended the nursery attached to the Yale Clinic.

Much of the data produced by Hildreth, Monroe, Gesell, Ilg, and Ames from the late 1920's until the mid 1940's, and by Ilg and Ames as late as

1950, focused on the developmental nature of the patterns. Much emphasis was placed on "growth trends," and such ideas as "developmental sequence." While the authors did caution about the individual nature of the child, their language tends to create a sensation of the invariant nature of the process. Gesell states, "The sequence of a gradient (the Gesell gradients) tends to remain the same for all children in spite of individual variations." While there are sufficient references in Gesell's preface statement to "use the gradients as a guide to understanding the individual child's maturity level, it appears the fine work done by these early American pioneers seems to have been quite neglected as a valuable set of guides." In order to make use of this valuable resource of information we have compiled the data with the idea of using them in at least two major ways: 1) as a yardstick by which to measure our project children in a longitudinal fashion. (This should help us establish whether our stimulation program is accelerating the children past the reference behaviors at an increasingly earlier age.) and 2) as a device to help precisely define the behavioral differences among children in our population by race, sex, and socioeconomic status, tasks not undertaken by Gesell. As work on the gradients progressed it became clear that many of the statements were not in precise behavioral terms and often left doubt as to the quality of the observations, by use of terms such as "appears," "may," "seems." A diagnostic test was constructed, composed of a series of hurdles which the child had to attempt to pass. In the course of this interaction with such things as books, words, pictures, and paper and pencil the child evidences his degree of sophistication in the areas of picture reading, letter and word behavior, handling books, and book-related behavior.

Some behaviors were not easy to

elicit without elaborate stage setting and were put in the schedule of behaviors that would be collected by applying systematic observation efforts to activities in the room where the behaviors were most likely to occur.

The first major testing with the instrument was an effort to look at some of the Research and Development Center population along two dimensions, socioeconomic level (high and low) and stimulated versus traditional kindergartens. We also wanted to see if the low income child, with benefit of the stimulation, approximated Gesell's high income child of 28 years ago.

The data below represent a sample of the total collected and will be discussed here only for the effects of the Research and Development Center reading and writing programs on the disadvantaged sample ($n=47$). Comparison is with the sample of upper and high-income children from traditional kindergartens ($n=95$).

Discussion of data

A general analysis of the data leaves one very clear conclusion. When compared with advantaged children from professional level families, who are in a traditional kindergarten, the stimulated disadvantaged group shows a clear superiority in these ways:

1. More perform effectively in auditory memory, as evidenced by their high level of success in memory for names of unknown objects, reciting verbatim a line from a story read, and reciting the exact plot of a story after one reading.

2. In book related behaviors there is, among the disadvantaged subjects, more ability in the mechanics of book handling and more knowledge of how to care for books. The experimental subjects know, in a significantly greater ratio, that the purpose in looking at a book is to "read."

3. Indices of reaction to print indicate that the experimental group is ex-

tremely word conscious and quite sophisticated towards reading.

4. Letter and word reading is probably the area where the effects of the stimulation are most striking. The project children clearly surpassed the advantaged controls in capital letter knowledge, recognition of own first name, knowledge of sign words in and out of context, simple oral spelling, sight word knowledge, interest in small letters, visual discrimination of word form, and number who had begun to develop a sight vocabulary.

The writing behaviors test clearly shows the influence of the Research and Development Center writing-spelling program. On the progressively more difficult task of copying geometric shape models the stimulated children were clearly superior. In behaviors involving the production of letters and words, as a group, they were again well ahead of the control group. The controls showed a higher incidence of poor control in fine motor coordination, printing on the page at random, and in horizontal position, complete rotation of name when writing, and of ceasing to identify letters previously known when attempting to print them.

In the future, preschool stimulation and evaluation appear headed toward more intensive behavior analysis. It will take considerable finance and much effort, but the dream of the good primary teacher, to base all her activities on an analysis of the individual's reinforcement, speed, and motivational needs may be just a short step away.

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The Research Base for Individualizing Reading Instruction

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DURING THE PAST DOZEN YEARS, leaders in American education have been engaged in an almost frantic search to find the qualities that are required for excellence in education. Some, apparently believing that any kind of change will be viewed by the public as progress, have merely resurrected and renamed various discredited panaceas of the past. Numerous others have hastily climbed on any flashy bandwagon of change that seemed most likely to impress people favorably. Our more responsible leaders, however, have attempted to experiment carefully with old and new plans for improvement before jumping to conclusions.

Qualities of excellence

It comes as no great surprise to those who have observed teaching for a long time that the experimental evidence points to two prime factors in the attainment of excellence in education: 1) an excellent teacher and 2) a situation that makes highly differentiated, or individualized, instruction possible.

Studies in various fields, including reading, show that some teachers consistently get better results than others (23, 27, 56). While it is not yet possible to describe the excellent teacher with scientific accuracy, we are learn-

ing more about the characteristics that can most often be attributed in various degrees to him or her (28, 52, 53, 66). Because of research and careful observation, we are reasonably sure that the outstanding teacher has a good knowledge of his field of instruction, thinks creatively, structures work in a meaningful manner, inspires and motivates children, expresses a sincere interest in their progress and problems, and communicates effectively with them. He works unstintingly on instructional preparation and teaching, assesses progress, diagnoses difficulties, differentiates instruction, and helps pupils develop increasing independence and self-direction.

The importance of differentiating instruction is readily apparent when one analyzes intelligence test data. The mental age range of children in the usual first grade class is four years—first grade children are four, five, six, seven, and nearly eight years old mentally. This mental age range increases as children grow, until by the time they are completing the sixth grade and approaching entrance into the junior high school, the mental age range is seven and a half or eight years (14). This means that in most sixth and seventh grade classes we have youngsters who have the mental power of average third, fourth, fifth, sixth, seventh, eighth, ninth, and tenth grade students. Obviously the teacher who assigns the same level and amount of work to all members of a class is asking some to do the impossible, while condemning others to endless boredom.

Homogeneous sectioning procedures fail

The first extensive use of intelligence tests in the 1920's revealed this variability of pupils in graded classes, and led to efforts to differentiate teaching by reducing the range of ability through homogeneous class sectioning. Because studies showed, however, that

groups structured to be homogeneous on one test score were still highly variable on test scores in other areas (10, 33); schools lost interest in homogeneous sectioning in the 1940's. During the past decade public pressures have created a new hope for ability grouping and have stimulated the restudy of old research and the collection of new data.

As far back as 1936 Hartill found that when 1374 fifth and sixth grade children were taught by the same teachers using heterogeneous and homogeneous organization plans during successive years, they made superior reading gains in heterogeneous classes (29). Thirty years later Goldberg, Passow, and Justman reported another ambitious study involving over two thousand fifth and sixth graders classified in five ability levels. They found that "... narrowing the ability range in the classroom on the basis of some measure of general academic aptitude will, by itself, in the absence of carefully planned adaptations of content and method, produce little positive change in the academic achievement of pupils at any ability level" (23).

In 1962 Drews found that ninth grade pupils taught by the same teachers in homogeneous and heterogeneous sections did not differ significantly in reading comprehension (16). More recently Borg very carefully compared achievements of several hundred elementary and secondary students in homogeneous and heterogeneous sections. When homogeneous sectioning was novel, it produced better reading achievement results, but thereafter it was not better than heterogeneous sectioning. Children in heterogeneous sections made significantly higher scores on the *California Study Methods Survey* (9). This year, Justman reported another study which again showed that a reduction in class variability does not result in increased reading growth (38).

Although a few studies have seemed to support homogeneous sectioning, Borg's analysis revealed that these usually were of faulty design (9).

Because grouping to reduce the class achievement range in one subject does not appreciably reduce the range of class achievement in other subjects (6, 10), the Joplin Plan of redeployment, or interclass grouping, was devised. It requires that classes be resectioned every hour according to achievement for each subject.

At least three researchers have concluded that the redeployment plan produced greater reading gains than ordinary self-contained class instruction (15, 25, 44). But four have shown it to have no significant effect (13, 39, 43, 49), and a couple of others have suggested that it might even have a negative effect on reading growth (48, 51). One writer pointed out that the favorable results were obtained in short experiments, which would be most influenced by novelty effects (15). This view is supported by results of the Morehouse study, which ran for five semesters. During the first semester the children in the redeployment sections made the greater progress, but thereafter the progress of pupils in those groups "was no more than, and sometimes less than that of pupils learning to read in graded classes" (43).

The redeployment plan is particularly objectionable because it actually interferes with true individualization. The regrouping of pupils and their movement to different classrooms increases the difficulty that a teacher has in getting to know the personal and educational problems of each pupil. If a child is with his reading teacher for only one period daily, it is impossible to diagnose his strengths and deficiencies in connection with reading in all fields of study, and to give him the challenge or the corrective help that he needs during odd moments throughout

the day. Likewise, the tyranny of the bell prohibits the flexibility of scheduling and the intercorrelation of learning activities which might motivate reading.

Fundamental inadequacy shown

When favorable results are produced by any of the homogeneous sectioning procedures, they probably can be attributed to one of three causes: 1) novelty effect, 2) utilization of teachers who are exceptionally competent and enthusiastic, or 3) comparison with indefensible whole-class teaching procedures. Even a weak half-measure such as the Joplin Plan has a chance of stimulating more progress than a situation in which there is no differentiation at all!

No recent research project explains the fundamental inadequacy of homogeneous grouping plans better than the one reported by Balow in 1962 (7). Balow sectioned ninety-four fifth grade pupils into four so-called homogeneous classes on the basis of their grade-equivalent score averages on eight tests of various reading skills. Before this sectioning, the average scores of the individual children on the reading tests ranged from 2.0 to 9.0. Afterward, the ranges of average scores for each of the four classes were only 2.0—3.6, 3.6—4.6, 4.6—5.6, and 5.7—9.0. This made it appear that homogeneous sectioning had greatly reduced the amount of individualization required for teaching each class.

However, when the researcher analyzed the scores of individual pupils on all of the eight tests of reading skills, he found that score variation within each of the four classes was often almost as great as the variation among all the scores of all pupils before they were divided into classes. In Class B, for example, where the range of average scores was only 4.6—5.6, the ranges of individual pupil scores on four of the tests were: for rate, 1.8—

12.7, for comprehension, 2.5—11.1, for word meaning, 1.8—7.9, and for alphabetization, 3.1—12.4. Balow properly concluded that the practice of homogeneous grouping does *not* provide homogeneous groups (7).

This study clearly shows that structuring classes to provide a limited range on one test score, even when that score is the average of several scores on different reading tests, does not appreciably reduce the variability of skills achievement within any class. After "homogeneous" sectioning is done, there is still approximately the same need for individualized teaching as before. We only delude ourselves when we think we can teach all of the children in a class as if they were alike. Unfortunately this is what usually happens when there is an administrative effort to do ability sectioning (5).

Better organizational plans

After reviewing the experiments with school grouping in several countries of the Western World, Yates concluded that grouping "should be confined, during the primary and early secondary stages, to subgrouping within classes . . ." (67). Grouping within classes is most often observed when schools are organized according to self-contained, modified self-contained, team teaching, or nongraded plans. However, because the effectiveness of each of these plans depends entirely on the efficiency of each teacher, it is exceedingly difficult to obtain conclusive evidence about the values of the organizational plans themselves.

In assessing the reports on team teaching, one authority noted that they "offer assurance that team teaching does at least as well as conventional plans with respect to outcomes measured by standardized tests" (30). A specific study, comparing progress of primary and intermediate teams with self-contained classes, favored the

self-contained groups during the first year but found teamed classes gaining during the second year (10).

An NEA survey in 1965 indicated that one-third of 353 responding school systems were trying nongrading in some of their schools (17). True nongrading provides no single educational mold that all children must fit. Instead it offers a general sequence of learning experiences that can be broadened or constricted, accelerated or slowed in accordance with the child's rate and direction of growth. One experiment with this type of program indicated that achievement was less than in graded classes (12), but several others resulted either in no significant achievement differences (32), or in greater gains in nongraded than in ability grouped classes (34, 59). Using a matched pairs design, Hillson found that after three years of work nongraded classes achieved significantly higher on standard reading tests than graded classes (31). Carrying nongrading a step further than some, Rehwaldt and Hamilton discovered that the assignment of children on several age levels in heterogeneous classes was more productive than the usual single age grouping (50).

Instruction is individualized by teachers

School organization plans of themselves cannot provide for individual differences, but the more flexible plans such as self-contained classes, team teaching, and nongrading free the teacher to do so. There is, as yet, only a limited amount of research to show how successful teachers can be in differentiating study.

It has often been suggested that teachers individualize through various types of subgrouping within classes, and a study done twenty years ago by Jones certainly supports this idea. Fourth grade groups of below average, average, and above average ability all

made significantly greater gains in reading when grouped to use materials of five levels of difficulty than did other fourth grades when using only fourth grade materials (36).

Opinions differ on the best forms of grouping, but perhaps this problem can be solved best by adopting a combination of power grouping, skills refinement grouping, and reading activities grouping (56). Groups should be provided with materials never used by other groups, too. The use of different basal materials for each power group has been shown to result in better reading achievement and better attitudes for all except those pupils in top groups (11).

Some teachers have moved beyond grouping to completely individualized reading, wherein each child chooses his own book and is taught individually in conferences that may be held once or twice weekly. Several researchers have concluded that individualized reading is more effective than basal group teaching (1, 3, 17, 35, 62), but too often their experimental designs have been open to criticism for failure to control such factors as availability of books, teacher selection, and instructional time. In some cases, individualized reading has produced inferior results for all or some groups of pupils (2, 54, 58), and in others the differences have not been significant (42, 46, 63, 65).

An examination of the research reports leads to these tentative conclusions about individualized reading instruction: 1) Individualized reading can be somewhat successful under certain conditions. 2) It requires highly competent teachers, and those who are not particularly capable should not be asked to adopt it. 3) Children usually enjoy the personal attention of the individual conference and, as a result, develop favorable attitudes toward reading. 4) They often, but not always, read more books. 5) The less

capable pupils and those having special problems are likely to be less successful in individualized reading than in more structured programs. 6) The lack of a sequential skills program and opportunities for readiness instruction cause teachers to feel doubtful about the adequacy of skills learning. 7) Teachers are constantly pressed for time to provide conferences that pupils should have (5, 26, 55, 58).

More and more teachers are combining individualized reading with patterns of grouping within the classroom (19, 57, 63).

Autoinstructional procedures

Every teacher who wants to individualize teaching is faced with a time problem. Some, in fact, seem to reach a point where attempting to teach an increased number of groups or individual lessons results in a decrease in their effectiveness. Therefore, we can hope that the use of autoinstructional techniques will be helpful in the future.

Although several sets of programed reading materials are available (21), the research on this type of individualization is in its infancy. One evaluator found that primary children using programed materials made considerably more progress than those using the usual basal materials (37). Another reviewed several early studies and concluded that "programed instruction techniques can be used effectively at all grade and ability levels . . ." (22).

A research team reporting on ten experiments with one version of programing concluded that "programed tutoring does teach," and "the optimal duration of tutoring sessions appears to be fifteen minutes" (18). Perhaps their most important finding was that "Combinations of programed tutoring with classroom teaching are more effective than classroom teaching alone, and, most certainly, although the evidence is less clear, more effective than

programed tutoring alone" (18). Others who have reviewed the research agree with this finding (60).

Lindvall and Bolvin have explained a programed curriculum called Individually Prescribed Instruction (41), and they have found that the reading achievement of children in this project is at least as good as that of children in other types of programs (8).

Research with very complicated computerized machinery is now under way in several places. Atkinson and Hansen have described a computer-assisted instruction program with which they are working in California (4), and Spache has detailed its shortcomings (61). A second computer-assisted instruction project labelled PLAN (20) involves experiments in teaching reading in five California schools and four schools in Eastern states.

Moore's talking typewriter project has been expanded into the Edison Responsive Environment, which according to Gotkin and McSweeney, surrounds the learner electronically with the modern equivalents of "the tape recorder, slide projector, electric typewriter, and classroom chalkboard complete with pointer" (24). For those of us who are concerned about the dehumanizing effect of machines, these researchers say that ". . . from the very start the child is spoken to and given instruction by, a warm, rhythmic, and whimsical voice" which "invites the child to play games rather than informing him that he is to learn something new" (24). We must await research findings on both the reading achievement results and the personality effects produced by these complicated devices.

Regardless of the types of tools and techniques that may be employed to individualize reading instruction, the teacher will always hold the key to their effectiveness. We have seen that school organization plans contribute nothing to individualization; they

merely impede or facilitate the efforts of the teacher. Likewise, the auto-instructional devices that are being developed will not restrict the teacher; instead they will be powerful tools which the teacher will learn to use to fulfill the educational needs of individual pupils. Excellence in the teaching of reading now requires and always will require an excellent teacher and a situation, including the best of tools, which enables that teacher to provide highly individualized instruction.

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Cognitive Processes in Reading: Critical Review and Evaluation of Research

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THE PURPOSE OF THIS REPORT is to give a critical and selective review of empirical research of higher mental processes in reading. The conceptual framework of Russell (9, 10) has been used to structure the presentation. Russell suggests that it is feasible to describe unique characteristics of each of six processes of thinking. Furthermore, these categories may be applied directly to the learning of language abilities and especially to reading.

Wiener and Cromer (12) have suggested a dichotomy of identification versus comprehension for defining reading behavior. Identification of the stimulus configurations refers to letters, letter patterns, words, clauses, and sentences which appear on the printed page. Perhaps Russell's categories of perceptual and associative thinking are related to the identification or decoding aspect, which is ignored in this report.

Wiener and Cromer describe the other end of the dichotomy—comprehension—as implying the derivation of some form of meaning, and the relating of this meaning to other experiences or ideas. The more refined categorization from Russell may be applied to the comprehension end of the dichotomy by including the labels of concept formation, creative thinking, critical thinking, and problem solving. Accordingly, the research is placed and examined using these categories, although some studies cut across several. Little stress, however, is given

to research dealing with literal meaning as comprehension.

There have been earlier reviews of research in the area of reading comprehension ability beyond the literal level—for example, Jenkinson (4); Lundsteen (5) Russell and Fea (11), and Wolf, Huck, and King (13). This report, however, reviews critically and in depth the methodology, the treatment of data, and the conclusions of five recent studies.

Inductive concept formation

The Davis study

Of significance in the area of research concerned with the cognitive processes in reading, recent identification and measurement of reading skills demonstrated that comprehension among mature readers is not a unitary mental skill or operation (3). After summarizing important empirical studies of comprehension in reading, Davis stated that, to be useful, studies must use carefully written and selected items to measure differential skills. Moreover, large samples of examinees and highly refined statistical techniques must be employed if extremely small amounts of variance, unique to each skill, are to be successfully detected. Stating that statistical techniques to measure differential skills in reading comprehension have been inadequate, Davis designed his study of identification and measurement of reading skills in which, for the first time, a cross-validated uniqueness analysis based on large samples of examinees ($N=988$) was employed.

Based on experimental studies on the analysis of comprehension in reading, eight skills were selected for measurement. 1) recalling word meaning (which accounted for 32 percent of the variance), 2) finding answers to questions answered explicitly or merely in paraphrase in the content (10 percent of the variance), 3) weaving together ideas in the content, 4) drawing infer-

ences from the content (20 percent of the variance); 5) recognizing a writer's purpose, attitude, tone, and mood (11 percent of the variance); 6) drawing inferences about the meaning of a word from context; 7) identifying a writer's technique; and 8) following the structure of a passage (14.5 percent of the variance). A range from literal comprehension to more sophisticated comprehension is noticeable.

Furthermore, Davis listed the salient characteristics of the test as follows: the items for each skill in the test were initially judged to match the skill for which they were to be used; all items in each skill test showed a higher biserial correlation coefficient with the skill they were intended to measure than with other skills; all items were of appropriate difficulty for use with twelfth grade pupils; each item was based on a separate passage, and no passage occurred more than once.

A statistical study of this sort depends basically on the appropriateness of the item used, e.g., items of appropriate difficulty. Meaningful criteria for the difficulty factor in terms of complexity and linguistic difficulty might substantiate or render questionable the investigator's claim of appropriate difficulty.

The author emphasized that the study stands or falls on the validity of the items used, and on the psychological insight and ingenuity. It may be "nit picking" that the sample item for inferring word meanings from context assumed that twelfth grade students do not know the meaning of the word "apprehension" for the skill of inferring word meanings from context. An alternative would have been the use of nonsense words as in the Ames study (1) or merely blank spaces.

As indicated earlier, statistical analysis yielded estimates of the proportions of unique variance in the non-error variance of each of the eight skills in comprehension. The data from this

study, classified as definitive by the author, leave little doubt that parts of the mental abilities used in the eight skills judged to be of importance in comprehension are independent of one another for mature readers.

It has been suggested that there is a need to become independent of labels when considering instrumentation, it is necessary to examine measurement behaviorally in terms of the task presented to the child, i.e., what the child must do or know. This study represents such an endeavor.

It may be a minor matter of semantics that although a null hypothesis is not stated formally in the report, one may be inferred from the statement of the primary purpose—to obtain estimates of the percentage of nonchance unique variance in the reliable variance of each of measurable skills of comprehension among mature readers. In the conclusion, however, the statement is made that the most clear-cut finding of this study is the need for a series of self-teaching exercises for developing proficiency in the constituent skills (p. 75). If the conclusion is to take into account the scope and level of generality justified by the data presented, perhaps the words "implication," "new question" or "implementation" would be more appropriate than the phrase "clear-cut finding."

The Davis study appears to apply relevantly the most advanced and sophisticated statistical techniques that are presently available to the task of skill analysis. The skills, three through eight, appear to be related to the Russell categories of inductive concept formation.

The Ames study

The Ames study (1) also appears to be related to the Russell category of inductive concept formation. The Davis skill number six, drawing inferences about the meaning of a word from context, is approached in an in-

ductive and elaborative manner by Ames. The Ames study sampled a wide variety of contextual situations in a random manner, thus an attempt to approximate total possibilities for the use of contextual aids could be uncovered. Furthermore, the Ames study utilized the individual interview for an intensive analysis of the processing procedures of skilled, mature readers when called upon to determine the meanings of unknown (or simulated) words, and to classify contextual aids on the basis of the elements of the verbal context that had been used.

Subjects were twelve advanced graduate students. The assumption was made that the use of a particular type of contextual aid would be sufficient evidence that such an aid existed, had possible utility, and should be entered into the new classification scheme.

The choice of materials was limited to *The Saturday Evening Post* and *Reader's Digest*. Within the material, a random selection of the point of word determination from context was made, generally on the basis of each fiftieth word (556 different contextual situations). Four main meaning classes of words were used which corresponded to adjectives (the most troublesome class for the investigator), adverbs, nouns (with the exception of proper nouns), and verbs. A nonsense word of the same length (one clue in itself) was substituted for the fiftieth word and the structural or inflectional ending was retained (another clue). The order of presentation of the selection was randomized.

The investigator acted as judge as to correctness of the reader's meanings drawn from context around the simulated word. As a check, a random sample of 20 percent was drawn and judged by an independent and qualified person. The estimate for reliability of agreement was .95. Next, the classification scheme was devised in-

ductively, rather than trying to force the response into a prearranged scheme. The coefficient of agreement for each placement within the classification scheme between investigator and judge was .80. The investigator listed six limitations of the study before presenting his fourteen point classification scheme of contextual aids. The sixth category, "synonym clues," might have been, from examination of the subject's verbalization and the contextual content, better labeled "redundancy clues."

To some degree this study produced validity evidence for some of the deductively constructed or logical categories proposed in earlier works, such as the seven categories suggested by McCullough. In fact, the knowledge that the investigator had of the earlier schemes, consciously or unconsciously, may have directed his attention into these channels. However, the additional seven categories should serve as a suggestion to test constructors, such as Davis. The fact that Davis found that relatively little non-error variance could be attributed to this skill (use of context clues) might be related to the absence of the refined analysis into which this skill might be placed.

The same sort of analysis used by Davis would be appropriate, possibly, for a carefully constructed test devoted solely to the important skill, use of context clues, and revealing a profile of abilities. Moreover, the Guilford theoretical model (especially the "faces" labeled products and contents) might be superimposed on the Ames fourteen point classification scheme to further pinpoint the mental structures involved.

Creative reading

The Covington study

The research conducted by Covington and others (2), and Olton and others (3), in a Productive Thinking Program at the University of California at Berkeley is relevant to the pro-

cesses of creative reading and problem solving. The cognitive skills, attitudes, and dispositions which the program seeks to develop in the student are highly general ones, presumed basic to all complex thinking processes, but particularly crucial to the higher cognitive processes employed in creative reading.

Arguing that a student must be taught *how* to think creatively, Covington described a process of curriculum development intended to strengthen those cognitive skills basic to all creative thought in the context of complex and meaningful problems which reflect the principal steps in the creative act. It appears, however, that the development of such a curriculum would predictably affect the reading ability of the student by direct training in cognitive skills and dispositions which underlie creative understanding, such as the capacity for going beyond the information given, an ability to evaluate data, a willingness to raise questions, and to seek out alternative interpretations of the facts.

Series I. General Problem Solving is now ready for regular school use; the three remaining series focus respectively on explanation and prediction, on invention and innovation, and on creative expressions.

The outcome of several separate studies, involving more than 2,000 fifth and sixth grade students from the San Francisco Bay area and from Racine, Wisconsin, has been to test the educational effectiveness of the program and to demonstrate significant and consistent gains in thinking skills and reading abilities as a result of the Productive Thinking Program. Consistent gains have been demonstrated on a statistical basis through the use of a large and comprehensive battery of tests.

In the California work, one might suggest that experimental control through random assignment of stu-

dents or intact classes to treatment conditions is preferable to matching classes where certain differences remain uncontrolled. As the Covington and Crutchfield curriculum purports to combine direct and explicit training of higher order thought processes with an ongoing program of reading improvement, perhaps the investigators should employ appropriate standardized reading tests to determine reading improvement as a result of their creative, cognitive curriculum. The Productive Thinking Program might be specifically developed and employed in the context of a humanities or science curriculum, or at least a content more related to school curriculum than is a diet of mystery stories.

One of the important features of the Covington work is that it has been replicated through the cooperation of the Wisconsin Research and Development Center for Cognitive Learning (8). The subjects for the replication were fifth grade students in 44 classrooms in Racine, Wisconsin. Eight males and eight females were randomly selected from each class. IQ was used for randomized blocking technique ($N=704$). Classroom mean was used as the unit of observation for the major analysis. Further blocking was made with respect to facilitative (creative) or non-facilitative classroom environments, so that treatment (receiving the Productive Thinking Program) and control groups could be assigned randomly within these categories.

The 16-lesson series (self-instructional, linear format) required a total of 16 classroom hours of instruction time. In this replication, the lessons were administered one per day for four days of each week, the remaining school day was used for makeups. The teacher's role was held to a minimum, possibly explaining the descending significances found.

Critical reading

The Wolf, Huck and King study

Definition of the problem. Wolf and others (13) called their study *Critical Reading Ability of Elementary School Children*. Grades one through six participated in the experiment. A major purpose of the study was stated as testing whether or not critical reading skills could be taught to elementary school children, while normal progression of other basic reading skills was maintained (13: 2). Another purpose was the identification of factors related to reading ability.

The definition of critical reading, however, is a quite broad one. The revised definition of abilities of the mature critical reader (as opposed to the higher illiterate) numbered approximately 46. The three experimental tests, two for primary grades and one for intermediate grades, ranged from a total of 42 to 54 items. Thus, some aspects were not measured at early grades because the items were judged to be inappropriate. Moreover, some aspects were measured by only one item.

The tests at each level were grouped into three sections: logic, general abilities, and literature—in that order—with content classed as argumentative, informational, and literary. Items that tested pupil ability to detect logical fallacies and propaganda devices, and to evaluate internal consistency were labeled as logic.

Fulfilling the definition of critical or evaluative thinking advocated by Russell, Bloom, and Guilford, some items appear to be designed to elicit the operation of critical thinking after application of criteria—a criteria of internal logic. Other sections of the test might more correctly be labeled analytical reading. In other sections, parts of discourse tend to be analysed with no explicit criteria to apply consciously. The "general" and "literature" items

appear to represent important subcapabilities that may underlie terminal behavior of critical reading in which a highly conscious judgment is made after application of criteria. Items designed to elicit judgment of a writer's content and judgment of his effectiveness could not be located in the samples given for the literature section of the tests. Perhaps the items measuring subcapabilities should be placed first in the test of critical reading as well as first in the lesson, if subcapabilities are to be included. Another alternative might be alternate forms in which the three classifications of items were rotated so that each group of items had an opportunity of being placed first in the test.

It is not so much the comprehensive attempt to study critical reading that is being questioned. Such attempts are to be applauded when they evidence as much careful thought as this endeavor. It is rather the systematic operation, the sequence, the increase in complexity toward terminal behavior that is being questioned. If critical reading is a subset of comprehension skills in the total framework of reading (13: 3), it seems that one portion of the test succeeded in delineating this subset, and the other portion of the test belongs to some other subset perhaps interpretive, not critical, skills. The "spiral" (13:4) will probably be more clearly defined as analysis continues. Accordingly, perhaps the title of the report would be more accurate though certainly more cumbersome—if it read *Comprehension Abilities Including Critical Reading Ability*.

Theory. Next, the statement of the theoretical framework for the study appeared merely to give relationships among variables of reading, critical thinking, and critical reading. Actually, both the *Taxonomy of Educational Objectives*—cognitive domain (modified to include Taba's element of control which was dropped from the

final analysis)—and the Guilford model are also used in coding the observations made of teachers and pupils during lessons in critical reading or literature. Why the decision was made to use Bloom for the teacher and one "face" from the Guilford structure of the intellect for the pupils is not made explicit. The Guilford structure of intellectual abilities was modified to include random responses, with memory and cognition grouped together. Perhaps a melding of the two frameworks, from the taxonomy and from Guilford, could have been used for both populations. Lastly, the nature of *teaching* critical reading did not appear to embrace any implicit theoretical or psychological framework. Admittedly, this explanation may give some direction as to relationships, and an attempt at theoretical basis may have been premature and artificial.

Materials. Materials or teaching units were twelve in number, six for the experimental group and six for the control group. Information as to the control of time, or time of day used for the lessons for experimental groups, is not given, other than that two lessons per week were given throughout the year. This lack of description would make replication of the study difficult. It is equally difficult to actually distinguish between the lessons for the control group and for the experimental group, other than that the control group's lessons were *not* intended to develop evaluative reading skills (13: 25). Both groups of lessons, control and experimental, dealt with children's literature. There appeared to be relatively little reading, however, for the logic lessons (13: 32). Again, a need for additional development is challenging.

The tests. Technical care in test construction is perhaps one of the strong points of this study. One of the authors suggests the limitation that the intermediate form may be too diffi-

cult for fourth grade, since a 4.0 reading level is necessary to master general reading mechanics of this form. The fourth grade means are slightly below the third grade means, even though the intermediate test contains a slightly larger number of items. Teachers who ranked the five highest and five lowest pupils furnished data for current validity. Kuder-Richar.lson formulas 20 and 21 and the split-half coefficients were used to check the reliabilities at each grade level. The range is from .63 to .89. Over 5,000 students in eight states participated in the norming of the test. The Ohio State University Critical Reading Test

Experimental phase. A confounding variable may be operative in that teachers in the experimental group had chosen the summer workshop on critical reading, rather than the workshop on children's literature. These two workshops were offered during the summer of 1965. No information is given as to whether both workshops were offered at the same time or not. In addition, generalization can only be made to teachers who "volunteer," as both experimental and control teachers volunteered for the project. It is assumed that the alternative of offering "a workshop" and then randomly assigning teachers to the critical reading or the literature sections was not feasible in this instance.

Grades two through six were pretested in September on general reading, California Achievement Tests, and on critical reading. The Ohio State University Critical Reading Test (described earlier). First grade was pretested in January.

An important feature of the study was that both control and experimental teachers were observed systematically during the teaching of the units and were given assistance through individual conferences and through two one-day training sessions in the fall and in the middle of the year. Another note-

worthy feature was that careful analysis was made of the observational data. First grade classes had *dual* inputs of being able to read the test and being able to hear it read aloud at the same time. All groups were post-tested in May.

The pupils numbered a total of 651 (with a 7 percent loss) from 24 intact classrooms. Two of the teachers who had attended the literature workshop were assigned to the control groups, and two of the teachers who had participated in the workshop on critical reading were assigned to the experimental groups at each grade level. A pool of 62 teachers was available. Some attempt was made to match for socioeconomic level of class, given the selection of the experimental group. The groups were tested for homogeneity of regression on all pretests at each grade level, and no sampling bias was interpreted for the results. A 2 x 2 replication (or class) by treatment design was used. Two classes within each treatment were simply assigned randomly to a position as replicate number one or as replicate number two. Then, interactions at each grade level could be examined, an addition design that yielded interesting information.

It is possible to tell that there was wide teacher variation by comparing the between-classes variation to the within classes variation from the tables in the appendix. As the pupil was used as the unit of variation rather than the teacher, the results may be confounded on occasion in that it is impossible to tell if differences could be attributed to treatment or to the teacher.

In a pioneer study of this nature, however, there is perhaps more danger of ignoring small differences that could lead to interesting further study and attempts at replication. A future analysis, given direction by this study, with sufficient classes to use the intact

class as the unit of observation, could meet this ever-growing criticism of educational research.

Results. At grade one it appeared that the logic section of the critical reading test accounts for most of the differences found between the experimental and the control group in favor of the experimental group (given the reader is willing to ignore the fact of intact classes, teacher variation, and the use of class residual variation as the error term).

The significance level set before the experiment was .05 for test data, .01 for observational data. Probabilities at the .10 level are reported as trends of possible interest for future investigations.

For grade two, the logic section of the test once again appeared to account for the differences, in favor of the experimental groups. For grade three, alone, the experimental group scored significantly better on all three parts of the critical reading test. For fourth grade, the difference was in favor of the experimental group again only for the test section on logic; the same findings held true for the fifth grade, and the sixth grade ($p < .10$). No differences were found for any of the treatment groups on General Reading (California Test of Reading, Form X). An examination of scores from high, medium, and low IQ levels showed consistent superiority of experimental classes over control counterparts on the logic items. The relatively superior gains of the low IQ level of the experimental group may be a noteworthy finding for those who have felt such training was appropriate only for gifted children. Another interesting feature of the study was the careful analysis made of observational data.

Time taken for the two lessons a week in critical reading did not appear to hurt the general reading comprehension of the experimental groups, as measured. In addition to this, experi-

mental groups appeared to gain some ability, as measured by the Ohio Test of Critical Reading, in dealing with logical fallacies such as unrepresentative generalization, hidden assumption, drawing conclusions from a syllogism, composition and division (what holds true for the group holds true for each member of the group), finding false and hidden premises, identifying false analogies, and assuming the cause.

Further refinement of the measures, the lessons, and the teaching-learning theory may make possible further research toward a unified attack on the critical cognitive process in reading. This study should stand as a monument along the way.

Problem solving

The Lundsteen study

This study, containing five treatment groups (6), is related mainly to the last process mentioned from the Russell model—problem solving. Measurement (7) does, as usual in these studies, cut across the other higher mental processes. Although the treatments were contrastingly different programs, they were not controlled as solely reading programs. Thirty classes ($N = 683$) of fifth-grade children in Santa Barbara and Ventura counties participated in the Thinking Improvement Project (TIP) which was funded by the Charles F. Kettering Foundation. Volunteer teachers were willing to be assigned to any of the treatment groups.

The purpose was to examine effects of various types of pupil training on creative problem solving in the language arts. To examine the contribution from assistance of two hypothesized subcapabilities, the experimental classes were assigned randomly to three experimental and to two control treatment groups. All experimental groups had a core program in problem solving. Treatment 1 had, in addition, problem-solving practice, treatment 2

had listening training, and treatment 3 had training in qualitative levels of thinking, especially assistance in reaching abstract levels. All children had two lessons (30 minutes each) a week for 23 weeks in problem solving. In addition, pupils were trained for one lesson (30 minutes) in their emphasis area. Lessons for the two control groups—one with pretest, one without—were formulated with the same time allotment from the California State adopted materials.

The question was raised as to whether reading ability as measured by the Stanford Reading test and the STEP Reading test would be maintained, or even show large unexpected changes which might or might not be associated with the training of the Thinking Improvement Project (7).

Toward the beginning of the experiment, the Stanford Reading Test (form W, Intermediate II), consisting of word meaning, paragraph meaning, and total score, was administered to the three experimental groups and to the control group with pretest, all assigned randomly. Analysis of covariance, using the Lorge-Thorndike IQ scores (Grade 6, Level D, verbal) as the covariate on the Stanford reading pretest for this large sample, showed no significant difference. Simple inspection showed small differences in favor of the control group. There was also no significant difference on socioeconomic rating between treatments. Nine months later the same test was administered to the randomly selected subsample ($N = 140$, eight pupils selected from each class originally) who were then in the sixth-grade.

Use of another analysis of covariance on the pretest reduced sample showed that this random subsample differed significantly on the pretest of reading achievement. The highest mean was that of the control group on the pretest subsample. Consequently, analysis of covariance using both the

IQ score and the pretest Stanford Reading score was made.

Results showed the following: There was a significant difference (pupil as the unit of observation) on the total reading portion of the Stanford test ($p < .05$), and a significant difference ($p < .10$) on the paragraph meaning scores. There was no significant difference on the word meaning score.

According to the rule of thumb for comparisons, since there were four treatment groups, only three planned contrasts were made between certain selected groups. On the total Stanford post-test, treatment 3 (the group which was assisted with abstract thinking) had the highest mean. This group scored significantly higher according to analysis of covariance, than did the group having extra practice in listening ($p < .05$). There was no significant difference between the group having extra practice on abstract thinking and the control group, or between the group having extra practice on problem solving and the control group.

Using the large sample, a "post-test only" analysis using IQ as covariate was made for the STEP reading tests (Form 4A).

Results from the analysis of covariance (IQ covariate) on the STEP test using all five treatment groups were significant for the treatment effect ($p < .01$) and for the sex effect ($p < .01$), pupil as the unit of observation. Simple inspection showed that the highest predicted value was that of the girls in the group trained in abstract thinking; the next in order was that of the girls trained in the listening emphasis.

Results on each of the five STEP subscores were then analyzed; the Duncan multiple range test was used for contrast. The fifth treatment randomly assigned to no pretest appears to account for most of the differences, which leads one to speculate about the

training effects of taking the battery of nine experimental measures and the Stanford reading test as pretests. Next, analysis was made for both reading measures with respect to high, medium and low IQ ranges. In general, the treatment group trained in abstract thinking was consistently in the leading position at the low IQ level. Most of the general limitations mentioned in connection with studies discussed earlier also apply to this study, especially the limitation of using pupils as the unit of observation with respect to the reading measures.

Conclusions

Recent research related to higher mental processes in reading is scarce and employs many varying designs, methods, and treatments of data. Goals for higher cognitive processes in reading need to be clarified and related to theoretical models. How specific were the comprehension skills which were introduced is difficult to determine from the experimental research reports. The use of the pupil as the unit of observation, in spite of intact classes, may confound effects in most studies. The alternative of artificiality, enormous samples, or Type II error also has drawbacks. Adequate measurement for higher mental processes in reading is in need of imaginative construction and refinement, though progress has recently been made.

Because of conversion lines of experimental evidence, because of an increasing concern for making use of higher conceptual, creative and critical potential, because of the need to set a more demanding range of goals for reading instruction, it seems appropriate now to treat reading research as an opportunity to investigate assistance of the child's higher cognitive processes.

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Research in Teaching Reading to Disadvantaged Learners

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THE EFFECTIVE EDUCATION of disadvantaged learners constitutes one of the greatest challenges confronting American education today. Central to meeting this challenge is the development within such learners of the capacity to read effectively. In this review the disadvantaged are defined as being the inhabitants of the subculture of poverty (32) and therefore the term disadvantaged is not restricted to any particular racial or ethnic group.

Reading related problems

Achievement scores of poor children in urban schools reveal a growing or cumulative retardation as they pass through school. Numerous researchers see problems associated with language development as major contributing factors to this achievement deficit (13, 16, 28, 12).

Research data appear to have isolated the following reading-related problems displayed by disadvantaged students.

Auditory discrimination deficit. Research findings (7, 5, 12, 11, 54, 30), indicate that disadvantaged learners score lower on measures of auditory discrimination. This ability is believed to contribute to later reading achievement. The work of Chall et al., also illustrates that auditory blending (which involves the ability to reproduce a word by synthesizing its component sounds) was significantly related to later achievement. Disadvantaged learners tend to be deficient in this ability.

Visual discrimination problems. Disadvantaged learners have been found to display poorer visual discrimination abilities (51, 13), and difficulties with

form discrimination and spatial organization—both of which are involved in the reading process.

Vocabulary deficits and articulatory problems. Several studies reveal that disadvantaged learners possess smaller speaking vocabularies than do their more advantaged peers (29, 42, 10, 18, 15, 49). Problems associated with articulation in disadvantaged learners have also been identified (47, 6).

Language and syntactical organization problems. The disadvantaged have been found to possess major deficits in syntactical organization and in problems with subject continuity (1, 18, 33). In addition to this, language usage by the disadvantaged is marked by its restrictive nature and emphasis upon concrete needs and immediate consequences.

Problems associated with cognitive style. Disadvantaged learners have been found to be more concrete or motoric in their learning styles (39). Likewise, they appear to make use of differing learning modalities with visual-motor modes in greater evidence than auditory-vocal modes of learning (12, 23, 30, 51). Studies involving such language abilities as labeling, relating, and classifying also indicate differences favoring middle-class youngsters (28, 41).

Additional problems relating to reading and academic achievement. Lower levels of self-esteem generally found in disadvantaged learners appear to be related to later reading achievement (50). Also, the disadvantaged seem to have different concepts of time (25, 12), and a greater need for immediate and more concrete reinforcement in learning situations.

The above problem areas appear to be related to reading achievement. Some of these factors perhaps have a greater impact upon reading achievement than do others. Regardless, planners of reading programs for disadvantaged students should be aware

of and give consideration to these factors.

Reviews of reading research programs

In this section reading research dealing with disadvantaged learners in preschool, elementary school, and secondary school programs will be reviewed briefly in summary form. For specific research data and methodology, the reader should consult the references cited.

Preschool and readiness programs

Limited attention at the preschool level has been given to the reading-related learning problems of disadvantaged students listed above. Two researchers (52, 43) have produced data which indicate that auditory and visual discrimination performance can be improved with training. A missing link in research in this area is the possible relation between these skills or abilities and later reading performance. Only one investigator (11) has explored the possible relation between auditory discrimination and later reading achievement. The findings in this instance are inconclusive.

Traditional preschool programs seem to be concerned with the effectiveness of various approaches to reading readiness, (17, 3, 19, 26, 46). Experimental conditions range from reading stories to studies featuring parent involvement, day camp experiences, and traditional readiness programs. The findings of most of these studies are questionable in light of data produced, methodological and statistical considerations.

One study (20) was found in this area which devoted specific attention to the variables of the type discussed initially in the review. The findings of this research indicate both significant growth in vocabulary and IQ scores for several different groups over time.

A final study involving preschool

teachers deserves mention (8). This research is significant in that certain teacher characteristics (e.g., value placed on property rights, warmth, permissiveness, etc.) were found to be associated with pupil performance.

Elementary school programs

At the elementary school level, again, limited attention seems to be devoted to the specific reading related problems of disadvantaged learners. Researchers at this level appear to be dominated by the need to prove the superiority of one instructional method over another. For example, are basal readers better than the basal-phonics approach, or is English as a second language superior to the language experience approach (2, 9, 24, 36, 23, 27, 36)? These studies have yielded no data which are conclusive and strongly suggestive of guidelines for reading program developers and researchers concerned with the disadvantaged learner.

A few studies are reported which deviate from these approaches. One researcher (14) reported significant gains for disadvantaged students when parents were involved and teacher emphasis was upon vocabulary development and reading comprehension. The use of creative dramatics (4) was found in one instance to be associated with significant reading gains. Reported research relating to the use of programmed learning and teaching machines is extremely limited. One investigation (31) did find that teaching machines produced significantly greater reading gains than did programmed texts, and regular reading instruction.

An area of research which is just beginning to receive attention relates to the possible impact of reading content upon students of differing social class and ethnic origins. One study (53) considered the preference of white and Negro students for an ethni-

cally integrated reading series as contrasted with a nonintegrated series. The integrated series was preferred, but no major significant reading differences were found between groups using the two series. Another study (41) did find that white and Negro students have significantly different preferences for reading and writing subjects when these relate to race. This is an area which is a research wasteland.

Adolescent and young adult programs

Reported reading research declines with each increase in school grade level. Few investigations are reported which deal with adolescents and young adults, and these tend to be of remedial nature.

The investigations reported at this academic level seem to stress (21) individualized reading and to make use of contemporary reading materials such as paperbacks and newspapers among other materials (22). Results in the case of the individualized reading program (21) was productive of no significant gains, while the other program of a similar nature (22) did report significant reading gains.

The only reports of the use of behavior modification techniques in seeking reading improvement are reported at the secondary level (45, 35). The findings from these two studies are contradictory. Nevertheless, the approach is in keeping with research which indicates that disadvantaged learners need more frequent reinforcement for desirable behaviors or performances.

Another study (31) which involved Job Corps candidates and the use of an unspecified reading program was not productive of significant reading gains.

Only one research report (38) dealing with the reading preferences of adolescents was encountered during the course of the preparation of this review. The subjects were Negroes and

whites and were not identified as being disadvantaged learners. The research is important because significant differences in reading preferences were found between the groups.

Critical review and evaluation

Reading retardation constitutes the greatest barrier to the effective education of disadvantaged learners. And yet despite the crucial nature of this skill, a review of the literature reveals a dearth of reported efforts designed to meet this challenge. Undoubtedly, hundreds of reading programs supported by ESFA funds have been conducted, but few of their findings have as yet filtered out the files of state departments of education.

In this section time will not be taken to review the specific conceptual and methodological weaknesses revealed by this review. Reading research, like much of educational research, suffers from such flaws as the a) failure to state hypotheses clearly, b) selection of inappropriate research designs, c) failure to properly assign subjects to experimental conditions, and d) application of inappropriate statistical techniques, and so forth. Attention will be restricted rather, to factors which appear to be universal problems inherent in much of the research.

With the exception of a very few preschool projects, reading programs for the disadvantaged fail to take into consideration the learning problems which have been identified as characteristic of such learners. This weakness may, in part, be attributed to the absence of adequate research which has clearly identified relationships between these problems and the various elements comprising the reading act. Regardless, too few efforts aimed at the diagnosis of the specific learning problems of students have been undertaken prior to the institution of reading programs.

One gets the impression, in review-

ing reading programs, that excessive emphasis is placed on the various techniques and approaches to the teaching of reading and not enough to specific behavioral modifications desired in the student. Standardized reading tests (which may demand knowledge or skills of the students not dealt with in the program) become the sole criterion by which the program is evaluated. Reading research suffers because its objectives are often not stated as specific behaviors which the designers of such programs consider to be desirable outcomes of the experience.

Another problem which seems to have been little noticed regards the identification of disadvantaged students. Too often, because a student attends a school dominated by low-income or bilingual students, it is assumed that he is a member of this particular socioeconomic stratum. Ethnic group preferences and housing discrimination may operate so as to invalidate this classification for numbers of students.

In reports of reading research too little attention has been devoted to differences in teacher competencies, interests, and attitudes. Mere random assignment of teachers to various treatments or conditions while methodologically sound seems inadequate. If a program is to be successful, teachers interested in participating in such and who are knowledgeable of and skilled in the use of related techniques should be involved.

A final weakness of reading research for the disadvantaged seems to be the often one-shot nature of such programs. As with Head Start projects, gains reported by certain programs may not persist. Longitudinal studies of reading efforts are greatly needed. It may well be that such studies will reveal the need to conduct major curriculum and methodological revisions if reading programs are to be successful with disadvantaged learners.

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Cognitive Processes in Reading: Implications for Further Research and Classroom Practice

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THOUGH READING IS NOTED as the area of the curriculum which has been subjected to the greatest amount of research, it is surprising that there is such a paucity of material which deals with the problems of higher literacy as described by Chase (3) or technological literacy as described by Jenkinson (9). It is frequently assumed that if the words are decoded, meaning will be automatically understood. Though word recognition is a prerequisite of reading, it does not guarantee understanding. There is sufficient verbal recognition in textbooks on reading that attention needs to be paid to comprehension at later levels because of the increasing complexity of the concepts contained in the material, because of the more involved language structure used, and finally because the material calls forth more mature cognitive processes on the part of the reader.

One of the reasons for this small amount of research probably lies in the nature of the complexity of this activity and, secondly, because historically this has not been seen as imperative until comparatively recently. Moreover, as an area ripe for investigation, it is plagued by the problems attendant on research at the frontier of any field.

There is lack of definition about the subject being investigated. Many investigators have linked reading cognitive processes as synonymous with critical thinking. Yet thinking in reading is a specific controlled activity, the control being dependent on the thoughts engendered by the materials read. But even critical reading has been so variously defined that it is fre-

quently impossible to relate the disparate findings and conclusions of different studies.

In addition, there are particular difficulties specific to the investigation of this needed area of knowledge, such as the lack of appropriate measuring instruments or even consensus concerning the activity which is to be measured. Furthermore, there are a myriad of topics which are conceived as contributing to the thinking processes involved when the thinking is that type of mental activity triggered by the printed word. Although there has been some experimentation in appropriate teaching methods, this lack of clarity of definitions basic to the area has resulted in lack of cohesion with respect to the endeavours aimed at developing appropriate teaching and learning techniques of reading comprehension.

Problems of definition

The problems in differentiating the varied conceptions of terminology has recently been the subject of some attention (4, 16, 20). It is clear that some of the theoretical models of reading and many of the experimental analyses of the reading act cover at least three dimensions of the concepts of reading. On the one hand, there is the attempt to define the problem in terms of the perceptual and cognitive processes involved in reading, and to delineate the distinctive nature of the reading act. Secondly, there is the plethora of analyses of the skills and abilities involved in reading, both in terms of word knowledge and of the comprehension of longer passages. Thirdly, there are the appropriate techniques which appear pertinent to reading instruction.

Many experts have given summaries of the cognitive processes which they felt were involved in the reading process. One of the best known is that by Gates (7).

... However, to say that reading is a thought getting process is to give it too restricted a description. It should be developed as a complex organization of patterns of higher mental processes. It can and should embrace all types of thinking, evaluating, imagining, reasoning, and problem solving. Indeed it is believed that reading is one of the best media for cultivating many techniques of thinking and evaluating.

While this is an adequate summary, some parts of it should be further commented on in the light of thinking which has occurred since Gates wrote in the NSSE 48th Yearbook.

Some researchers tend to concentrate on reading as a type of problem solving. They suggest that the reader defines the problems when he assesses the author's purpose for writing and determines his own purpose in reading and proceeds through the traditional problem solving steps (19).

Other writers have seen reading in terms of a confluence of convergent and divergent thinking (11). The convergent occurs because the reader must lay his mind open to the precise meaning that the author is presenting but his thinking may become divergent when he reacts to and then assimilates the ideas from the material.

Another way of examining reading is to look at it in terms of a systems approach, and see reading as featuring both an open and closed system (10). This requires extrapolation, interpolation, and reinterpretation in the light of the reader's reaction.

Considerable stress has been placed by others on the cognitive problems involved in both inferring and deriving meaning through both interpretation and extrapolation, and Barrett has presented a taxonomy of reading comprehension which details eight different types of inference (2). This taxonomy also emphasizes the problems of reasoning in reading and suggests that the reader must be aware of the logical and psychological problems involved in the ideas presented. This logical anal-

ysis will be dependent upon the reader's ability to analyze and synthesize and frequently reorganize the ideas and information that is presented. This may be done by means of classifying, outlining, summarizing, and consolidating through synthesis both the explicit and implicit ideas presented. This ideally leads the reader to make the appropriate judgments, but such judgments go beyond literal comprehension and involve interpretation and evaluation.

Though most of the research has tended to stress the cognitive aspect of the process, some attention has been directed to the affective domain which must be part of appreciation. Studies which have revealed this have usually been concerned with the factors that are involved in reading literature.

A major problem arises, too, because most of the definitions of cognitive processes involved in reading are rarely made explicit by the researcher. The reader of the research is left to infer this either by the questions the research attempts to answer, or by the research activity mode, or by the measures used. It would appear that too few researchers work from an explicit concept and state specifically what is precisely the problem under investigation. The confusion and lack of consensus concerning definitions of cognitive reading processes is reflected inevitably in the diversity of approaches in the research. Some have stressed the importance of developing logical awareness and logical elements sequentially and at appropriate levels. Others have focused on developing critical judgments in terms of the examination of evidence, of suspending judgment, of the reader asking appropriate questions of the material presented, or making readers assess the validity of the ideas presented. While much of this involves so called critical judgment, the elements of classical rhetoric have also been included, par-

ticularly at the high school and college levels.

Perhaps the greatest confusion arises from the plethora of attributes that are included in the higher levels of comprehension and particularly those in which critical reading is involved. The recent summary by Huus (8) gives some idea of the great divergence amongst researchers even of definitions of critical reading.

It would thus appear to be imperative that a synthesis is made of these concepts in order that the commonplaces may emerge. In addition, it seems essential that any future researcher should make explicit his concept and his dimension of the particular sphere of both reading and reading processes which he is investigating. Too frequently, the implicit assumptions are contradictory to the conclusions. Moreover, it would appear that future researchers should also differentiate clearly their investigations into process as opposed to those research activities which are primarily designed to increase our knowledge of appropriate learning and teaching activities.

The most glaring omission, however, in this whole examination of the cognitive process and its relation to reading is the scant attention which is paid at the level of theoretical rather than pragmatic analysis. Moreover, the problems of developing cognitive capabilities which evolve as the child progresses through school are rarely considered. Some recognition of this has been made by Wolf, et al., (21) in their studies which aimed at developing logic sequentially through grades one to six. But this is an isolated example. It would seem that we should investigate closely the classifying, categorizing capabilities of the child which Piaget, Vygotsky, and Luria have shown as developing slowly throughout the school years. The ways in which a child matures from concrete operations to the ability to manipulate

abstractions has seldom been recognized by researchers in this field.

There is an additional problem. A child may be capable of increasingly mature cognitive operations in his everyday expressional activities, but there is some evidence (14) that there is a lag between the acquisition of concepts in conservation, classification, probability, etc., and the ability of the child to recognize these and react appropriately to them when they are presented in print.

Other research problems

Arising from this lack of precision of definition, the research in cognitive processes and reading is difficult to synthesize. The research is also beset by other attendant problems. Time and space permit the mention of only a few of these.

The language factor in comprehension. One of the major problems in assessing reading comprehension is to differentiate between the factors which are involved in language acquisition and those which are closely connected with the difficulties encountered in reading comprehension. As yet, research has revealed few of the differences between the spoken and written language. Linguists have frequently commented upon this, but only recently have some of them begun to indicate, in sufficient detail, the nature of the difference between spoken and written language. Abercrombie's comments (1) are particularly pertinent to some of the aspects of written language which may inhibit comprehension. There still remains a yet larger problem—that of the nature of verbal understanding as a whole. As Russell (17) pointed out, this area has received scant attention, possibly because the complexity of the field is so great that few have attempted to understand what is still intrinsically a mystery of how thought is conveyed by words from one human being to an-

other. Again, the recent work of several psychologists in the area of language and cognition may begin to yield much pertinent information for future researchers in reading.

The general factors in reading comprehension. One of the earliest distinctions made as a result of research findings was that critical reading abilities were distinct from general reading abilities. Fairly early, too, it was established that though there was a minimal general factor in reading comprehension, major differences arose with respect to reading in various content fields. This has more recently been reinforced by Davis' research (6). It is obvious that as far as cognitive processes are concerned, each substantive field of knowledge will present different modes of thinking when presented in written form. One other factor appears to be that the cognitive nature of the writer's thought does not necessarily elicit an identical mode of thought response in the reader. This has rarely been investigated in depth, although several pieces of research, mostly still unpublished in the form of doctoral dissertations, indicate that this is probably so. A major factor in comprehension errors committed by readers may be their failure to be able to identify or emphasize with the thought of the writer. A further problem occurs too, in that there may be cognitive limitations of the reader in terms either of his developmental maturity or of his unfamiliarity with the topic of the material.

Several investigations have focused on the type of problems that appear to affect the quality of comprehension. It is proposed here to look at them in terms of problems which appear to be inherent in the material and those which are indigenous to the reader.

The problems inherent in the material. The genre or type of presentation which the author chooses to use, in addition to the constraints of the

cognitive discipline under which he is operating, may present many problems to readers who are unaware of the nature and impact of these controlling factors. Not only the substantive content but the level and concentration of concept presentation may also form a barrier. The tone of the writer, his attitude towards both his subject and the reader, all apparently affect the level of comprehension. Again, several studies have suggested this, but few have examined the question in sufficient detail so that only generalizations which are so vague that they are almost impossible to translate into direct practice can be made.

Factors within the reader. Though studies here are more numerous, even these are not very extensive. The results suggest that not only intelligence, but appropriate levels of cognitive development, including vocabulary and concept formation, are prerequisites to comprehension. Several years ago, Russell (18) suggested that "in all probability an inadequate vocabulary is the greatest single cause for failure to read with comprehension in either the general or technical field." Research since has substantiated this comment in detail, but further work has also shown that an adequate knowledge of vocabulary depends upon the depth and breadth of meaning as well as on the ability to understand the meaning of the word in use or in context (17).

Several recent studies have shown how comprehension is subject to the biases and attitudes of the reader and that such prejudices may be a product of the total environment, both within and without the schools which surround the child. It has also been shown that both the interest and the purposes of the reader will affect the level of his comprehension. While single studies have revealed this, there is not sufficient weight of evidence, as yet, to indicate the nature of the problem of determining bias, attitudes, in-

terest, purposes, or prejudices, and how to influence this. There are still not sufficient cumulative research results upon which we can proceed with security.

Some recent research, with respect to the factors within the individual reader, has attempted to examine the impact of the psychological notion of cognitive style, and to attempt to assess how this will reflect the ability of the reader to read critically or independently (12).

One of the most productive ways of analyzing problems encountered by readers, either within the material or in themselves, has been to analyze the errors that readers make. It has been in this area, perhaps more than any other, that ingenious attempts have been made, including the retrospective and introspective comments of the readers themselves on the processes that they appeared to be using as they read.

Problems of measurement. A major deterrent to research in cognition and reading has been the multitude of problems involved in devising appropriate measures. Most of the traditional standardized tests do not measure the type of cognitive thinking process that is involved in such activities as critical reading. As a result, most investigators have been compelled to devise their own measuring instruments. Though these have usually been very carefully constructed and have been checked for reliability, the nature of the validity of these tests is not always clear cut. Since construct validity requires an accumulation of information, and this is obviously lacking, the problems become compounded. Most researchers develop their objectives or hypotheses and then construct tests which will measure these specifically. Few researchers, however, have attempted to use tests devised by other researchers, arguing that they are not appropriate to their particular re-

search. The time has come when it is essential that some more general measures which have greater pertinence to the cognitive processes in reading must be developed. A further problem arises in assessing the validity of the tests because of the problem of the nature of general cognitive processes, and type of transfer from these processes to those which may be involved in reading.

An even more difficult problem with respect to measurement may arise from the nature or type of response by which we measure achievement. For the most part, the response mode is that of asking questions. It has been well documented that these interrogative techniques may, in fact, structure the respondent's thinking and thus his reaction to what he reads. There have been some attempts to use such things as the 'cloze' procedure (13) or to ask general questions which are open ended and do not require a single correct answer. It would seem, however, that there is a great need of ingenuity in devising not only more appropriate tests, but more appropriate response modes for measuring comprehension.

Furthermore, there are problems prevalent in the majority of research with respect to sampling, both of readers and the type of cognitive behavior appropriate to the differing reading materials. It would appear that effective research should include as many variables as possible. A more extensive repertoire, which would cover the multiplicity of cognitive behaviors and the inclusion of a wider variety and content of reading matter, is essential.

The inference of reading instruction on the ability to read critically. Much of the "practical" research has concentrated on attempting to devise methods, materials, and structures which attempt to improve the cognitive processes and, particularly, critical thinking involved in reading. In recent years, the work of Lundsteen (11),

Wolf, et al., (21), and Covington (5) should be noted. They have all carefully developed not only materials but methods, including specific lesson structures. Attempts have been made to control for such factors as the Hawthorne effect and card stacking, since there has been abundant evidence that it is the teacher rather than either the materials or methods that has the greatest impact upon reading achievement. One of the most rewarding practical results would be the observations of the teacher-learning processes that have occurred in the experimental classrooms. The focus on this area might yield information which is most easily translated into suggestions for classroom practice but, hopefully, would also indicate the ways in which cognitive development takes place through the posing of cognitive intervention and arousal of cognitive dissonance. The latter has been suggested by psychologists as an important factor in progressive cognitive development. Again, carefully documented evidence about what is really happening in the classrooms is essential to more effective suggestions for lesson planning.

Research in cognitive processes or reading processes. There appears to be confusion in research as to whether cognitive processes or reading processes and cognition are being investigated. It is frequently stated that process is under scrutiny whereas, in fact, what is occurring is that achievement in comprehension is being checked under a variety of conditions. The lack of recognition that there may be differences between the process and the apparent product bedevils much of the research findings.

In general, then, a great deal of the research, both results and methodology, rarely leads to more appropriate and specific techniques for teaching in the classroom. We need extensive and intensive work in investigating the processes as such, not only to increase

our fundamental knowledge about reading, but as a surer way of devising more efficacious techniques.

Perhaps our greatest lack, at this time, is a comprehensive and satisfying theory or theories of reading which will attempt to collate all facets and will suggest the appropriate interrelationships. Current attempts at model making are to be applauded, but each of these models usually starts from one orientation and rarely builds upon previous research. Nor does it integrate the many disparities of research finding. This may be asking too much at this stage in our development, but at least we might begin to try. Sophistication in research is increasing, particularly the use that now can be made of computers to account for an ever increasing number of variables. If this is coupled with ingenuity in creating measures and penetrating reflective insights into relationships of many of the facets indicated here, and if this is backed by careful research reporting, we might encompass a major breakthrough.

Implications for classroom practice

Though the findings of the research are sparse, some bear directly on classroom practice. All the extant research shows that it is necessary to begin to develop aptitudes, attitudes and abilities, which hopefully, will mature into cognitive activities basic to the reading of more complex material. Such training must begin as early as grade one.

A corollary of this conclusion appears to be that teaching and learning must be directed towards systematic, sequential development of these cognitive skills. It would appear that the skills development fall into two major areas. The first is concerned with eliciting the type of thought which is appropriate to the level of the development of the child and inherent in the

material. This includes, of course, the establishing of an extensive vocabulary but also ensuring breadth and depth of understanding of the concepts enshrined in words. Moreover, there is mounting evidence that complexity of language often reflects corresponding complexity of thought, and children must be made conscious of this. In particular, a recent study (15) has shown how important it is that children understand fully the meanings of the function words or connectives which frequently are the signposts to thinking. Unless the child understands the implications of such words as *if*, *because*, *while*, and *although*, he will inevitably misconstrue meaning. Awareness of the depth of meaning matures very slowly in children, but again, a beginning must occur in the early grades.

The other area in which research lends itself to systematic development is the cultivation of judgment, the means by which statements are assessed. Wolf (21) has indicated that it is possible to start with elementary aspects of logic and introduce these in successive ways throughout the elementary school. But we then need to make certain that this is practiced and applied continuously at the secondary level.

The ability to recognize the relevant and irrelevant in statements, to be able to recognize or define by himself the problem or topic of the discourse, is also important. Too frequently, however, we have not allowed our pupils to come to their own decisions with respect to this, but have allowed them to reach a decision merely by choosing the alternatives, in reply to a multiple choice question. In addition, lessons need to be devised which will enable students to detect the tone and the feelings of the writer both towards the topic and the reader. The reader must also learn to evaluate the source and assess the values of this particular

writer. Perhaps more than anything, however, the reader must be taught to "know thyself," to know his own prejudices, his own biases, and the probable causes of his misconceptions. He must make judgments of ideas, arguments, and conclusions in the light of his other experiences but must try to do this as objectively and dispassionately as possible. Yet, we should never ignore the fact that reading, itself, is an experience.

Another area to which we must ask teachers to apply their creativity is in the exploration of a variety of means for eliciting comprehension. Traditionally, questions are the most frequently used method. Questions may be posed by the textbook or by the teacher. Creative questioning by the teacher is one of the best known ways, and is still one of the most effective ways, of ensuring good comprehension. In addition, however, we must train children to ask their own questions. The art of the self-posed question is the key to good reading. After all, in the normal reading situation no external questions are asked. From the earliest grades, children should be taught to question themselves and the material as they read.

Moreover, the questions asked by the teacher should have a greater depth and variety. Teachers need to ask questions designed to check whether or not the child is accurate in the information he gathers from the printed page. We should also make certain that these accuracy questions are interspersed with questions to which there are no right or wrong answers, though there may be better answers, or alternatively, that answers may be better or worse, depending upon a legitimate differing interpretation. This difference may be the result of the extent of awareness of the silent clues to meaning.

This capacity implies an attitude of mind which is sometimes difficult for

young children, the attitude of mind which will allow them to hold in apposition two conflicting ideas before they come to a decision about them. The ability to withstand ambivalence is possibly a developmental trait. There is some evidence, however, that training will improve this ability. Rigidity in thinking may be one result of the over-insistence upon right and wrong answers. Sometimes, there are no right and wrong answers, but a child should know when either/or answers are called for, and when hierarchial possibilities exist.

Teachers also need to recognize that other means of ensuring comprehension are possible. Outlining, summarizing, précis writing, or just the oral or written explanation of the content of the story is often revealing. Teachers should become inventive in devising their own means of checking comprehension. Leaving a story unfinished and getting the children to suggest possible endings frequently means that the reader needs to have understood a good deal of the material.

Some material is now becoming available which treats directly some aspects of critical reading, and an attempt is made to establish both a hierarchy and sequence (5, 11, 21).

We must ensure that thinking is developed in terms of a number of different thinking modes. This demands that we teach for transfer from one subject matter to another. We must teach the fact that explanation and the nature of the methodology of enquiry will differ according to each particular content field. We might show how descriptions vary in prose and verse, in science and literature, in social studies and in mathematics. This can often be done by use of direct comparison and contrasting of paragraphs and passages with the same theme presented differently. But we must also ensure that a variety of materials, newspapers, magazines, advertisements, and letters are

used. This variety of exposure to differing materials appears to result in greater flexibility and specificity of response on the part of the reader. Wide reading alone is not enough—it must be accompanied by understandings appropriate to the content.

Lastly, the teacher cannot assume that mere exposure to answering questions designed to assess comprehension will automatically ensure that this takes place. Each skill needs constant attention and needs to be applied at different levels according to the difficulty of the content. One of the most insightful ways that have been used to gain information about the process is the examination of the errors made in comprehension. This examination of errors and the suggestion that students should defend their answers, are very productive ways of teaching and learning.

Conclusion

The complexity and enormity of the problem of investigating the higher mental processes in reading may have been the factor that has prevented much research in this area. In the past decade, more psychologists have begun to tackle the problem, and this has been reflected in an increasing awareness of the need to investigate this in reading. Since the topic is so wide, it is impossible, even with the small amount of research yet extant, to enumerate all the implications.

The problem seems to have been tackled in two ways, and it is not always clear which factor is the one which is the most efficacious. One thing that has emerged is that children's thinking can be improved. It is not yet possible to assert, however, whether one can improve children's thinking through reading, or whether children's reading improves through improved thinking. Perhaps this is a redundant question. Yet, we must encourage researchers to continue to ex-

plore this realm of research, because the skill of comprehensive comprehension in today's technological world is becoming more important.

Emerson once wrote that "it is the good reader that makes a good book," but the quality of thinking in good books may be dependent on the quality of thinking which the good reader brings to that book. I can only paraphrase Tenmyson in my own reaction to this field. It seems to me that this research "is an archway where through gleams that untravelled world whose margins fade ever and ever when I move."

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Educational Survey to Determine Reading Disabilities

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ON MAY 1, 1966, an ESEA Title III planning grant was awarded to the Washington County Board of Education in Sandersville, Georgia. The grant was entitled, "Developing a Pilot Reading Program." Twelve school systems, through an organized advisory board, participated in the project planning and research.

The survey

A reading survey encompassing these twelve school systems was made to determine the extent of reading disabilities of children in grades four through seven in this rural central Georgia area. Pertinent information on 11,311 children in the area was coded by grades within schools. A formula taken from page 77 of the 1957 edition of *Reading Difficulties: Their Diagnosis and Correction*, written by Guy L. Bond and Miles A. Tinker, was used to determine reading expectancy levels. The results of this formula, IQ times the number of years in school plus one, were subtracted from adjusted reading achievement scores. Reading achievement was measured by standardized tests. The tests used were the tests regularly administered by the system and, therefore, differed in the various systems. The results indicated the number of years of ability or disability of each student in reading.

All tests were administered during the 1965-1966 school year and the fall of 1966. All coding was done during the summer and the fall of 1966. Years in school were tallied as whole numbers; however, testing was done at different intervals of the year. The adjustment in achievement was, therefore, necessary. A ratio and proportion formula was used to arrive at an adjusted achievement for each student. The adjustment was made using the formula: years in school at the time of the test (to the nearest tenths) was to the score earned on the test, as the number years completed in school was to X. For example, if a student completing his fourth year in school in June of 1966 was given the achievement test when he had been in school 3.8 years, and the achievement score was 4.2, the formula would then state

$$\begin{aligned} 3.8 : 4.2 &= 4.0 : X \\ 3.8X &= 16.8 \\ X &= 4.4 \\ 4.4 &= \text{Adjusted Achievement Score} \end{aligned}$$

All achievement scores were adjusted by a computer in this manner. Since pacing not only varied from student to student, but from time to time for the same students, the adjustment in achievement is recognized as a limitation of this research study.

Tests administered

In nine systems the California Achievement Tests were administered, while in the other systems either Metropolitan Achievement, Stanford Achievement, or Iowa Basic Reading Achievement tests were given. IQ scores were obtained from California Short-Form Test of Mental Maturity in ten systems; Otis Quick Scoring Mental Ability Tests and the Henmon-Nelson Tests of Mental Ability were used in the two other systems.

Results of the survey

Due to differences in tests administered, data were handled separately for

each system. Educators viewed only the results of the study for their own systems. It was never a purpose of this research to compare systems; therefore, the results for this research study have been combined and are thus being presented as a single study.

According to the survey 7,940 of the children (approximately two-thirds) were disabled readers; 2,823 (approximately one-fourth) were disabled by more than one and one-half years. All fourth grade students whose disabilities were greater than one year and five months, fifth grade students whose disabilities were greater than one year and seven months, and sixth and seventh grade children whose disabilities were greater than two years, were listed separately by schools. Table 1 gives the complete results from all systems.

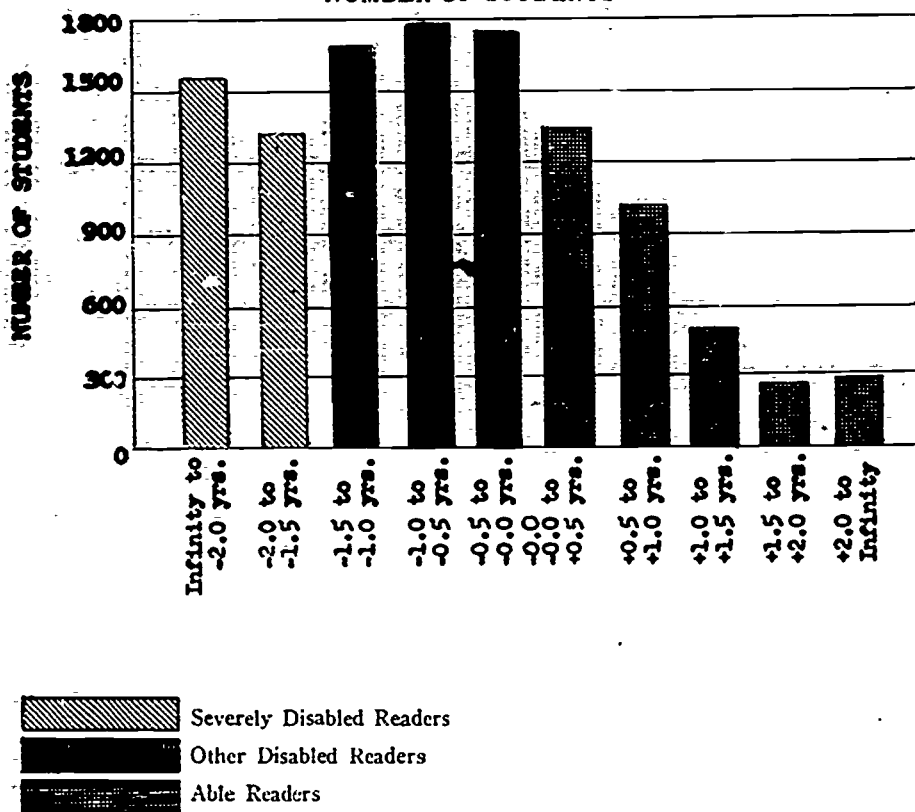
Limitations of the research

In addition to the adjusted achievements, other limitations were noted. Among these were the use of group intelligence tests, the fact that tests were administered by different persons, and the distortion of expectancy levels for students below and above the normal range of intelligence.

Comparison with national norms

The average adjusted reading achievement of the children in grade four (3.9) was found to be 3.6 or three months below the national norm. Reading achievement in grade five (4.9) was 4.5 or four months below the national norm. Children's average reading achievement in grade six (5.9) was 5.1 or eight months below the national norm. In grade seven (6.9) the average reading achievement was 5.8 or one year and one month below the norm for the nation. The comparisons with national norms were in relation to the average adjusted reading achievement scores.

Table 1
SUMMARY GRAPH OF EDUCATIONAL SURVEY
NUMBER OF STUDENTS



Program planned

As project personnel, the advisory board, administrators, and curriculum directors studied the results of the survey, answers were sought as to what could be done to improve the reading ability of these children and other children with similar problems. Although a preventive program was desired, it was evident that some treatment must be given for those students who were severely disabled readers. Therefore, along with concentrated planning toward in-service programs, an experimental study was undertaken with twenty-six disabled readers.

Selection of participants

Criteria for selection of the students

to participate in the study were three-fold.

1. They were enrolled in grades four through seven in the school chosen as the demonstration school.
2. Students of grade four were identified as being disabled by more than one year and five months; students in grade five by more than one year and seven months; and students in grades six and seven by more than two years.
3. All students were identified as possessing "average" or "above average" intellectual abilities. Average or above average is used to mean IQ's of children that have been measured as being 90 or above.

Classroom teachers were informed of the selected population according to the data available from the educational survey. They were asked to submit the names of other students they be-

lieved would also belong to the selected population. All students selected were administered the reading section of the Stanford Achievement Test for additional evaluation. Twenty-six students were thus chosen as belonging to the identified population. The second achievement tests administered were used as the pretests for the study.

Remedial instruction

From September 1966 to May 1967, between the pretests and post-tests, the students received remedial instruction for thirty minutes to one hour for three days per week. Teaching groups ranged in size from one to eight. The number of children most frequently taught in one group was five.

A variety of diagnostic tests were administered. The types of tests used were dependent upon the types of problems noted. In general, an informal interview was the first step of the diagnosis. This was usually followed by an informal reading inventory. If the students were believed to be reading at, or below, the third grade level, a list of Dolch Service Words preceded the informal reading inventory to assess sight vocabulary. Using this data and the data collected from permanent records and conferring with past teachers, clinicians decided which other tests, if any, should be administered. Wechsler Intelligence Scale for Children, Gray Oral Reading Test, Durrell Analysis of Reading Difficulty, Spache Diagnostic Reading Scales, Gates Reading Survey, and/or Iowa Work Study Skills were among the most used testing instruments. A Keystone Visual Survey Telebinocular was used to screen vision.

Programs for each student were dependent upon unique needs and interests. Diagnosis was continuous as weaknesses and strengths were noted at each session. The special reading teacher capitalized upon individual needs as she made daily plans for each

student. Each child's program was dynamic, comprehensive, pragmatic, varied, individualistic, creative, and flexible. Attention was continuously given to motivation. While challenging experiences were provided, all students experienced success. It was realized that the twenty-six students participating in the study had met with failure. Project philosophy was that continued failure resulted in more failure, while an adequate amount of success resulted in more success.

The special help given each student did not replace the child's regular reading program. It was provided as an extra service in addition to the regular classroom instruction.

Results of the remedial program

Subjectively, it was determined that the most positive effect of this aspect of the research was positive changes in attitudes. Objectively, it was determined that gains made were greater than those made by the students in any other nine-month period. The criteria for evaluating each student's progress were in terms of his prior learning rate as compared to his learning rate during the experimental study.

Case number one, a fourth grade student, had been retained in one grade and, therefore, had been in school for four years when he was given the pretest. The grade score earned on the pretest was 3.0. Since this represents two years of achievement (a child beginning first grade is considered at 1.0), he had accomplished 50 percent of the achievement expected for the "average" child after four years of schooling. It can be noted that there were eight months and nine days between the dates of the pretest and post-test. The time, however, has been calculated as though it had been nine months. Case number one showed a gain of nine months between the two testing dates. If the time is considered to be nine months,

the efficiency rate of achievement was 100 percent. The method used for comparing growth rates was devised by the investigators. The results are to be viewed as gross interpretations. One student moved away before the

TABLE 2
Summary of Data Obtained from Experimental Study

Case No.	Grade	Yrs. in Sch.*	Sex	Pretest 9-14-66	Posttest 5-23-67	Growth in Years	Growth Rate Prior to 9-14-66	Growth Rate During Experiment
1	4	4	M	3.0	3.9	.9	50%	100%
2	4	3	M	2.8	4.0	1.2	60%	133%
3	4	3	M	2.8	3.6	.8	60%	89%
4	4	4	M	2.2	2.5	.3	30%	33%
5	4	3	M	2.3	4.0	1.7	13%	189%
6	4	4	M	3.1	4.6	1.5	53%	167%
7	4	4	M	2.4	3.5	1.1	35%	122%
8	5	4	M	2.9	4.0	1.1	48%	122%
9	5	4	M	3.2	4.4	1.2	55%	133%
10	5	5	M	2.6	3.3	.7	32%	78%
11	5	5	F	3.6	4.5	.9	52%	100%
12	5	5	M	3.7	3.7	0	51%	0%
13	5	5	M	2.7	3.7	1.0	31%	111%
14	6	6	M	4.7	5.6	.9	62%	100%
15	6	5	F	4.3	5.9	1.6	66%	178%
16	6	6	M	4.1	4.1	0	52%	0%
17	6	6	M	3.6	4.3	.7	43%	88%
18	6	5	M	4.1	4.8	.7	62%	88%
19	6	6	M	3.8	5.2	1.4	47%	175%
20	6	6	F	3.7	3.2	-.5	15%	-56%
21	7	6	F	4.9	6.3	1.4	65%	156%
22	7	7	F	6.3	7.2	.9	76%	100%
23	7	7	F	5.9	8.4	2.5	70%	278%
24	7	6	F	5.5	5.8	.3	75%	33%

* Years in school to nearest whole number on pretest date.

post-tests were administered. Another was dropped because of a scheduling problem. Table 2 summarizes the results of the study for each of the twenty-four students remaining in the program at the end of the study.

Students listed as case numbers twelve, sixteen, and twenty were given pretests that were too difficult in terms of instructional levels; therefore, it is questionable that they were able to read the tests adequately. The scores received were largely due to chance. It has been found that students in the lower quartile make higher scores when given tests above their instructional levels than when given tests on their instructional levels. The more difficult the test, the greater the possibility for a higher chance score. Two of the students, case number sixteen and twenty, were given credit for more correct answers on the more difficult items of the test. The other case in point, case number twelve, received credit for approximately the same percentages of correct answers on all sections of all subtests. Since within subtests the skills measured become increasingly more difficult, the above facts stated would indicate the lack of validity of tests given to these students. According to informal reading inventories, case number twelve achieved three grade levels and cases sixteen and twenty achieved one grade level and one-half grade level respectively. It is now recommended by project personnel that students be given reading achievement tests appropriate for their instructional levels regardless of their grade levels. Such modifications are being made during the operational phase of this special reading program.

The average gain for all students to the nearest whole month in the eight months and nine days between the pretests and post-tests was nine months. The average rate of growth prior to September 14, 1966, was 53 percent;

the rate of growth for the period beginning September 14 and ending May 23 was 105 percent. If the three students in question are deleted from the study, the results are quite significant. The average gain to the nearest whole month would be eleven months. The average rate of growth prior to September 14, 1966, would be 53 percent and the rate of growth for the period beginning September 14, 1966, and ending May 23, 1967, would be 122 percent.

Summary

The survey of 11,311 students in grades four through seven in twelve central Georgia rural school systems revealed that approximately one-fourth of these students were reading more than one and one-half years below their expectancy levels as determined by a recognized formula. An experimental study was undertaken with twenty-six of the students identified as being severely disabled readers. Average gains, as determined by standardized tests, for the twenty-four students who received special instruction for approximately nine months were significant. Average growth rates in reading were approximately twice that made in all previous school years.

Following the creation of an awareness of such a need, the outcomes should be the invention of more effective teaching techniques, the demonstration of such techniques, and evidence that the more successful methods are being accepted by, and adapted to, the larger educational community. Certainly the stages of inquiry and invention were realized during the fiscal year 1966-1967.

Through an ESEA, Title III operational grant the latter stages of development are presently being pursued. The work herein presented was performed pursuant to a grant from the U. S. Office of Education, Department of Health, Education, and Welfare.

Research in Linguistics and Reading Instruction: Implications for Further Research and Practice*

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LINGUISTS ARE RELATIVE NEWCOMERS to reading instruction. Not that they didn't have something to offer us earlier, but, somehow, we were not ready to listen to them. When we did listen, it was to the structural linguists—particularly to Bloomfield and Fries—who addressed themselves primarily to problems of beginning reading, and more specifically to problems of word recognition.

We started to take linguistics seriously after Flesch (18) cited the earlier works of Bloomfield (7) in his call for a return to phonics as *the way* to start, although Bloomfield himself was just as opposed to phonic methods as he was to the prevailing look-say methods. It is significant to note however, that Bloomfield's beginning reading program, coauthored by Clarence Barnhart, was not published until 1961, although it had been used experimentally in some schools since the 1930's. Also, Fries' *Linguistics and Reading* did not appear until 1962, and his reading program was not published until 1965.

Bloomfield and Fries shared certain views about reading and its relation to spoken language. Both subscribed to the primacy of spoken over written language; the written form being essentially a visual representation of the spoken form. In alphabetic languages,

the letters stand for speech sounds. Thus, for the native speaking child who already has considerable command of the vocabulary and syntax of his language, learning to read is primarily learning the code—or the alphabetic principle—i.e., which letters represent which sounds.

Alphabetic languages, however, are more or less regular; there is a greater or lesser consistency between their distinctive speech sounds (phonemes) and the letters used to represent them (graphemes). Italian, for example, is quite regular while English is comparatively irregular. Thus, according to these linguists, learning to read English presents an additional hurdle to the beginner. This hurdle becomes even greater, they postulated, when the beginning reading materials use high frequency words that contain different spellings for the same sounds and different sounds for the same spellings, and when the major focus in teaching is on directing the child's attention to the content of what is read.

To simplify the process of learning to read, each believed that the linguist's contribution lay in identifying the basic speech sounds of English and establishing the relationships between these sounds and the letters that are most commonly used to represent them. With his information, it would then be possible to program the first steps in order to facilitate the learning of the alphabetic principle.

Now the crucial question for reading instruction is how these linguistic data are to be used. Knowing that certain sounds are more often spelled in certain ways, and knowing that certain sound-letter correspondences are more frequent than others does not automatically lead to decisions regarding programming and teaching procedures—i.e., when they are to be taught and how they are to be taught. As we know from the reading programs produced by Bloomfield [Bloomfield and

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Barnhart (8, 9)] and later by Fries (21), they chose to teach the most frequent and most regular correspondences first. They also assumed that the best way to teach them was in words carefully selected to permit the learner to discover for himself the relations between the letters and sounds. They were opposed to isolating sounds, to giving direct instruction in letter-sound relations, and to the teaching of rules. They were also opposed to the use of pictures and to encouraging the child's use of context clues, since they might distract the beginner from the major task—paying close attention to the letters. They also believed that the words used in the connected reading matter for the beginner should be selected on the basis of the correspondences previously taught. Only gradually, as each "spelling pattern" is mastered by reading orally words containing a pattern, is another introduced.

There are some minor differences between the Bloomfield and Fries beginning reading programs. Essentially, however, they are similar when compared to the most widely used beginning reading programs of the 1950's and 1960's as represented by the conventional basal readers (12). The Fries program puts more emphasis on comprehension (or reading for meanings) than does the Bloomfield, but it contains the same kind of connected reading matter. In the Bloomfield first reader, "Nan had a fat cat" (p. 45), while in the Fries Reader "Dan can pat the cat" (p. 36).

Other linguists or writers who based their programs on "linguistic principles" drew somewhat different implications from these linguistic data for reading instruction. Although they agreed that beginning reading is essentially mastering a code, some gave direct instruction in the sound-letter relations in addition to controlling vocabulary on spelling regularity. Some

also used pictures and introduced common, "irregularly" spelled words earlier.

The choice of *what*, *when*, and *how* to program materials for the optimal learning of sound-letter relations (or phoneme-grapheme correspondences) is not based solely on linguistic principles, even though the choice may have been made by a linguist. Other linguists have come up with different ways of relating spelling to spoken language. But even if we accept the Bloomfield or Fries schemes for relating sound to spelling, the validity of their programing cannot be established solely by linguistic data or theory, but must be tested ultimately by psychological and educational experimentation.

What is the experimental evidence so far? Levin's laboratory experiments (28) suggest that the Bloomfield type of programing of one sound for one spelling pattern may not be optimal; i.e., mastering *can*, *fan*, *Dan*, then moving to *cat*, *fat*, *rat*. Although Levin found that it takes longer to learn two sounds for one letter (e.g., to learn that *g* is pronounced as in both *go* and *gem*) than to learn one association at a time, dual-association learning had greater transfer value. Thus, systems that teach single associations may be easier for initial learning, but their transfer value for reading of English—where more than one sound for one letter or letter combination occurs—may be limited.

There is also some older evidence that direct teaching of letter-sound correspondences helps most pupils even when words are controlled on spelling regularity [Winch (34)]. A more recent laboratory experiment by Bishop (6) which simulated a beginning reading situation using adult subjects, also found that direct teaching of letter-sound correspondences help in learning regularly spelled words. She did find, however, that about half of

the group who did not receive direct letter-sound instruction were able to make the inferences themselves, and their performance was as good as those who received direct instruction in letter-sound relations. Thus, direct teaching of sound-letter correspondences (phonics) had more transfer value, but word training did produce some transfer.

What about the linguists' view of beginning reading as primarily a decoding process? My interpretation of the experimental, clinical, and correlational studies from 1912 to 1965 [Chall, (12)] tended to confirm this view. While there were too few experimental comparisons of the Bloomfield and Fries type programs with others, I hypothesized that they would probably produce better results than basal systems (with no control of sound-letter relations), but not necessarily better results than systematic phonics programs which also put greater stress on teaching sound-letter correspondences.

To a certain extent I was not too far off. In his summary of the USOE cooperative first and second grade studies, Dykstra (16) reported that at the end of Grades 1 and 2, the linguistic programs, when compared to basal programs, tended to produce better results in word recognition and spelling, although no significant differences were found in comprehension.

However, a phonic/linguistic approach (one that taught sound letter correspondences directly and used illustrations as well as words controlled on spelling regularity), when compared to basal programs, tended to produce better results in word recognition, spelling, and reading comprehension at the end of Grades 1 and 2.

Admittedly, such large scale methods comparisons are not the best way to determine the effectiveness of the application of linguistic data to reading instruction, since other variables may

have possibly contributed to producing the differences found. Viewed over the long run, however, it appears that some concern for the programing of sound-letter correspondences is important, at least for beginning reading instruction. I quote from Dykstra (16: 161): "Control of vocabulary, either by means of a transitional alphabet (ITA) or by means of introducing initially only regularly represented words, appears to facilitate acquisition of skill in unlocking words and in spelling. Some control of vocabulary according to phoneme-grapheme correspondences is likely to be helpful in the teaching of primary reading and spelling."

More recent analyses of English words by linguists go considerably beyond the simpler correspondences postulated by Bloomfield. Hockett postulated an implicit inner level of representation involved in the acquisition of literacy, since English written words are not a simple and direct representation of spoken words (there are too many cases in which the spelling is not predictable from the pronunciation), and English spoken words are not a simple direct representation of written words (there are too many cases in which the pronunciation is not predictable from the spelling).

Indeed, the computer-based data reported by Hanna et al., (24) on sound-to-spelling correspondences, and by Venezky and Weir (32) on spelling-to-sound correspondence patterns indicates that the relationships are more complex than once thought from the analysis of Bloomfield and Fries.

Recent work by Chomsky and Halle (14) may lead to even more complex and powerful rules for the relations between written and spoken words. According to their theoretical analysis, there is a deeper phonological explanation for the relations between the sounds and spelling of English than is found by comparing phonemes with graphemes. Indeed, Chomsky claims

that when understood from the standpoint of this deeper, phonological level, English spelling makes more sense than we have been led to believe by the descriptive linguists, since it gives the native speaker considerable syntactic and semantic information. Thus when analyzed on a deeper level, retaining the "silent" *g* in *sign* and the silent *b* in *bomb* makes sense when we come to the derivatives *signal* and *bombardier*. He also believes the written language has a life of its own—at a certain point it is not a direct representation of the spoken language, but an even better carrier of semantic and syntactic information for speakers of various dialects.

When the Chomsky-Halle analysis is completed, what will it mean for reading instruction? Carton suggested earlier today that it may bring back a whole word or sight approach as the first step in learning to read. In other words, we need not concern ourselves with teaching or programming sound-letter correspondences. It could, however, mean a different and perhaps more powerful kind of vocabulary control or phonic teaching; it could mean that the value of long and short vowel sounds can be taught more effectively in syntactic environments such as *sign signal*, *hide-hidden*, *bath-bathe* than in the traditional *pin-pine*, *cap-cape* contrasts which have no syntactic connection. Since it may prove difficult to find enough examples of the *bath-bathe* paradigm (many are of the type *explain-explanatory*), the question arises whether it would be better to delay such instruction until more relevant examples are in the child's spoken vocabulary, or perhaps even to develop the spoken vocabulary in this direction.

The broader implication of the work of Hoekett, and particularly of Chomsky, is to ask if the phonics or the simple sound letter correspondences now taught in the present "linguistic" type programs is general enough? Or

would Chomsky's more sophisticated information about the relationships between spelling and sounds lead to more effective sets of phonic principles and sequencing? It may be that Chomsky's deeper phonological rules will be more useful at later stages of reading and spelling instruction, while the simpler, more naive ones now taught are quite suitable for the beginner.

The influence of context on word recognition

The Chomsky-Halle scheme suggests that the spelling of a word gives the reader more than a clue to the sound of the word, that it can also give the native speaker syntactic and semantic clues.

Recent research on the oral reading errors made by first graders suggests that in the reading of connected material, syntax and meaning do, in fact, play an important role in word recognition.

In a recent study, Rose-Marie Weber (33, 29), a linguist with Project Literacy at Cornell, summarized the past research on oral reading errors. "In all of reading research the interest shown in words as visual displays stands in contrast to the neglect of written words as linguistic units represented graphically. That the reader's knowledge of the grammatical structure of his language comes into play during reading hardly enters into any discussion of reading errors." This is somewhat surprising, as most programs since the 1920's have put so much stock in context as a clue to word recognition.

Her own analysis of the errors made by 21 first graders who were taught by a regular basal reading program (Scott, Foresman) considered various linguistic levels: a) the word's match with the stimulus as a graphic display, b) its morphological structure relative to that of the stimulus, c) its syntactic function in a phrase as indicated by its

part of speech, d) its syntactic acceptability in the sentence, e) its semantic appropriateness to the sentence, and f) its appropriateness to the meaning of the entire passage. Full stops (non-recognitions), hesitations, and repetitions were not counted as errors.

She found that substitutions of one word for another comprised 80 percent of the total errors made by these first graders. Omissions and insertions constituted 10 percent and reversals and scrambles of words, less than 3 percent.

When substitution errors were further classified on an index of graphic similarity (e.g., identical letter, position of identical letters, length), she found that the high group had a higher index of graphic similarity than the low group. Comparing errors over time, both high and low groups showed an increase in the degree to which their substitutions approached the graphic similarity to the stimulus words.

No particular part of speech was more susceptible to error than any other, when compared to frequency in the text read. However, parts of speech that expanded the sentence (i.e., noun modifiers, adverbs, and some function words) were most often omitted or inserted.

Grammatical constraints were also a factor in the substitution errors, with 91 percent of the errors judged grammatical in terms of the preceding context, and 64 percent judged grammatical in terms of the entire sentence.

For sentences that remained grammatically intact in spite of the error, 93 percent were found semantically appropriate up to the point of the error, and 68 percent semantically appropriate in terms of the entire sentence.

She also found an interaction between the use of graphic cues and contextual cues (syntactical and semantic). The higher the graphic similarity of the error, the lower its context-

tual appropriateness. Also, grammatical acceptability and semantic appropriateness tended to decrease with time, reflecting, no doubt, the increasing ability of the children to respond to the words in terms of sound-letter correspondences.

Her conclusions (33: 102) with regard to the strategies used by first graders were as follows: "This analysis of errors on the syntactic and semantic levels suggests that even early readers can successfully make use of preceding verbal context; it is clear that they do not depend solely on graphic representation to make a response. Reading instruction might well incorporate guidance on the optimal balance in the use of correspondences between sounds and letters and the expectations transferred from verbal experience. *However, this description leaves us far from discerning what the optimal balance might be*" (emphasis mine).

In a similar study of oral reading errors among first graders who also learned to read in a basal reading program, Biemiller (5) found (although he counted nonrecognitions as errors) a "fairly regular" progression in the types of errors made at the beginning to the end of the first grade. He divided these into three major phases, the first phase being characterized by a preponderance of substitution errors that showed heavy reliance on context. Some children remained at this phase all year. Most moved, however, to a second phase when the majority of their errors were "non-responses." It was the better readers who reached this second phase earlier, and they were the most able readers by the end of the year, "while those children who never adopted a non-responding strategy (and continued using context predominantly) were almost without exception the poorest readers at the end of the year" [Biemiller (4)].

The third phase was characterized

by greater flexibility in strategies used to identify words. When reading relatively easy material (overall error rate less than 5 to 10 percent of words read), most errors indicated the use of context information. In addition, however, some errors also showed evidence of paying attention to graphic details. On difficult materials (overall error rate higher than 10 percent), less context information and more graphic information was used.

Biemiller noted that all children seemed to go through these three phases—the better readers at a faster pace, the poorer readers at a slower pace.

The implications for research of the Weber and Biemiller error studies are extremely suggestive. The most obvious question that arises is whether the same kinds of errors, and particularly the developmental phases described by Biemiller, would be found among first graders taught by others than basal reader programs? Is it possible that the particular methods and materials by which these children were taught (with their use of illustrations, their emphasis on reading for meaning, the learning of a limited number of sight words first with a slow introduction of phonics and the relatively limited vocabulary load) influenced the strategies they used to recognize words? Or are the strategies part of a general developmental sequence in learning to read, irrespective of the methods and materials used?

Biemiller (5) also analyzed the errors of first graders who were taught by a modified basal plan where "less constrained books were used," along with a somewhat heavier phonics program. He found no important differences in the kinds of errors made by children of comparable ability on materials of comparable difficulty as compared with those taught by a regular basal program.

Since neither programs controlled words used in the connected reading

matter for spelling regularity and, in fact, encouraged the use of contextual constraints, we still do not know whether those programs that discourage guessing, e.g., highly systematic phonics programs as well as the "Blainfield type" linguistic programs produce similar or different kinds of strategies. Also, do they ultimately produce the kind of flexibility in strategy in the third stage found by Biemiller at about the same time?

An earlier less systematic study by MacKinnon (30) suggests that the materials (particularly the sentences, and types of illustrations) make a difference in pupils' ability to recognize new words. He found that comparable groups using the Gibson-Richards materials (21) which carefully control sentence patterns and use stick figures that help trigger the meaning of the sentence were more successful in recognizing untaught words than those using regular basal readers.

It seems to me that longitudinal studies of oral reading errors carried out on the same children over a number of years may be one of the best ways to study *how* children learn to read. This kind of careful analysis may lead to more definitive answers on the recurring debates over *which* methods and materials are better or worse and, indeed, whether methods make any difference at all.

Analyses of oral reading errors of children strong or weak on different "readiness" factors, of children taught by different methods and materials, might well be a welcome relief from the too common experimental design of comparing Method A with Method B, where pupils are tested only at the beginning and at the end of each school year. With these designs, too much valuable data is lost, and it becomes very difficult to disentangle the significant factors that make for any of the differences found.

The implications of these kinds of

error data for understanding the beginning reading process and for the diagnosis and teaching based on individual needs are enormous. We may find that the same kinds of errors may be signs of progress for certain kinds of pupils, at certain times, while they may be signs of problems for others. Biemiller (*1*), in fact, suggests that the beginning context phase, which he found among first graders using basal reader types of programs, should be skipped or deemphasized—that the beginner should be discouraged from obvious guessing. At a later point, after he has passed the “non response” phase, guessing should be encouraged since the child now has more command of the sound-letter correspondences to make a good guess. Indeed, he found the poorest readers at the end of Grade 1 never went beyond the first context phase. It was only when they went through the “stop” or nonrecognition phase that they were able to proceed to the third phase—the one of flexible strategies—relying on context when reading relatively easy materials, and relying more on graphic cues when reading more difficult materials.

The possibility of this type of research is quite exciting. Such studies can help give us a picture of the developmental process of learning to read as it relates to ways pupils are taught, the materials on which they practice, and their own strengths, weaknesses, and styles of learning. For example, do children with poor visual memory and good intelligence stay too long in the early context phase when taught by a basal approach? Does a heavier decoding emphasis program (whether a Bloomfield type, a strong phonics type, or i.t.a.) help them skip the early context phase, but keep them too long on the nonrecognition phase? Or does it keep them too long on a graphic similarity phase, with little flexibility in using syntactic and semantic cues?

It seems to me that a linguistic anal-

ysis of oral reading errors, similar to those of Weber and Biemiller, would be especially helpful in studying the kinds of reading problems found among children with nonstandard speech, and then, perhaps to clues as to the methods and materials most suitable for them. At least such studies could give us some idea as to where their greatest difficulties lie—whether in the use of context, or in the ability to use sound-letter correspondences. Would an early emphasis on phonics help or hinder their acquisition of early reading skill? Or would the phonological differences between their own dialects and those of standard English make for more problems?

Labov's extensive analyses of Negro speech suggests that some phonics teaching would indeed help—but the teacher must be especially sensitive in teaching it. He found large-scale phonological differences among Negro speakers of nonstandard English that coincide with important grammatical differences. The result is a large number of homonyms in the speech of Negro children which are different from the set of homonyms in the speech of their teachers. Some of the phonological differences and their grammatical consequences found by Labov are:

1. 1-lessness resulting in such homonyms as tool = too; help = hep; all = awe.
2. Simplification of consonant clusters at end of words e.g., passed = pass; mend = men; hold = hole.
3. Other phonological variables, such as no distinction between short *i* and short *e* before nasals so that pin = pen; tin = ten, and since = cents.

Such phonological differences, according to Labov, make it difficult for Negro children to recognize many words in standard spelling. They may look up words in a dictionary under the wrong spelling, and may be unable to distinguish words which are plainly different for the teacher. If neither the teacher nor the children are aware

of the great differences in their set of homonyms, confusion may occur.

What is even more serious for reading, according to Labov, is that the various final consonants affected by phonological differences represent the principal English inflections, coinciding with grammatical differences. Thus, with the loss of /l/, the colloquial future is identified with the colloquial present, e.g., you'll = you, and they'll = they. The past tense may also be affected since the *-ed* is often omitted by phonological processes. Through the use of an ingenious series of tests, particularly the oral reading of sentences designed to determine the grammatical significance of *-ed*, e.g., "When I liked a story, I read every word" the proper reading of the homograph *read* indicates whether or not the reader interpreted the *-ed* suffix as a past tense signal. Labov found that *-ed* was interpreted correctly less than half of the time, less often, in fact, than the *-ed* was pronounced.

The implications of such dialect differences for the teaching of reading, according to Labov, are:

1. In the analysis and correction of oral reading, teachers must distinguish between errors in word recognition and differences in pronunciation from standard phonology because of dialect differences. [It is interesting to note that W. S. Gray made the same point in his instructions to the examiner for his Standardized Oral Reading Paragraphs Test (23)]. Information on the dialect patterns of Negro children should be helpful in making such distinctions.

2. In the early stages of teaching reading and spelling, it may be necessary to spend more time on the grammatical function of certain inflections, e.g., *-ed*. The child may say *pass* for *passed*, but if he knows that it means the past tense, no fuss should be made. Also, it may be necessary to treat the final elements of certain clusters with the special attention given to silent letters such as the *b* in *lamb*.

3. A certain amount of perception training in the first few years of school may be helpful in teaching children to hear and make standard English distinctions.

The key to the situation, according to Labov, is for the teacher as well as

the writer of instructional materials to know the system of homonyms of non-standard English and to know the grammatical differences that separate her own speech from that of the child. She should accept his system of homonyms, but not his grammatical differences.

Would Labov's suggestions help the teacher? Can materials be produced that give special attention to the non-standard phonological and grammatical differences? And would such materials help those teachers who may not be sensitive to phonological and grammatical differences?

It seems to me that a linguistic analysis of the oral reading errors of Negro children taught by different methods and materials would be extremely useful, especially if such analyses were combined with measures of understanding of sentences and selections. Such studies may reveal that programs which emphasize phonics or spelling patterns may be more confusing, especially if the teacher is not aware of dialect differences and insists on standard English pronunciation. Or, they may reveal, as some authors of phonics programs claim, that an early and heavy phonic and spelling emphasis is beneficial not only for reading and spelling, but for the development of accurate and distinct speech. Indeed, if this is the case, it may be less threatening and condescending to teach standard English phonology and grammar through reading instruction than through more direct practice in speech.

We are still left, however, with an important question. Why the cumulative deficits found in reading achievement among disadvantaged children? Why the increasing retardation, compared to national norms, found among lower class children, particularly lower class Negro children, as they advance through school? Can this be explained by the dialect differences found

by Labov, and can they be corrected by better beginning reading instruction? Or are more fundamental differences in language involved? If reading is the psycholinguistic guessing game that Goodman (22) suggests, then I believe we must look for more than dialect differences. According to Goodman, "Skill in reading involves not greater precision, but more accurate first guesses based on better sampling techniques, greater control over language structure, broadened experiences, and increased conceptual development. As the child develops reading skill and speed, he uses increasingly fewer graphic cues" (p. 7). If Goodman is correct, then it seems to me we might find a more powerful hypothesis for the cumulative deficit phenomenon in Basil Bernstein's theory of the different "codes" of lower and middle class speakers. According to Bernstein (3), language depends on the social relationships that exist between speakers. If the relationships are close, if much is shared in the environment, then a restricted code is used. In a restricted code there is heavy dependence on gesture and facial expression, sentences are short, with few logical connectives, since everyone "knows" what you mean. When the relationships are not close, more is put in the verbal messages; sentences are longer, more modifiers and clauses are used. According to Bernstein, the middle class child is exposed at home to *both codes* while the lower class child is exposed only to a restricted code.

From my work in readability measurement [Chall (11), 1958], it seems to me that the restricted and elaborated codes of Bernstein are essentially simpler or more complex forms of language—in fact, they would easily be classified as easier or harder to read and understand by any standard readability formula. If so, we may

then hypothesize that it is probably at about fourth grade level, when the language of the reading materials and textbooks approaches the "elaborated code" stage—when the language becomes more abstract, more removed from the here and now, etc.—that the lower class child begins to experience still other difficulties in reading, difficulties over and above any dialect differences that may interfere in his early reading.

We need to test these hypotheses. More specifically, we need to compare the oral language performance of lower class children in terms of complexity of syntax, breadth of vocabulary, level of concept—with this reading ability on material of equal complexity. We need to make the same kind of comparisons among children of the same age from middle class homes. Thus, we may determine where the essential problems lie.

When such data are obtained, it may be possible to devise and test different instructional strategies for the teaching of reading to lower class children. At least two major strategies seem appropriate even at our present state of uncertainty. One would emphasize language enrichment of experience, and concept development, right from the first grade or even earlier, with no major change in the teaching of reading, since the improved language should help the lower class child deal with the elaborated code of the more advanced reading material he meets in later grades. The other strategy is to put an early and heavy stress on reading. Perhaps, through early independence in reading, he may develop an earlier understanding of the elaborated code, which may, in turn, influence his own use of it in speech and writing. Other strategies may be various combinations of the previous two. Indeed, many of the existing programs may be thus classified.

Reading at the higher levels

Although most of my paper was devoted to implications of the work of linguists to problems of beginning reading instruction, I believe the real promise of linguistics and perhaps its greatest contributions to reading instruction will ultimately come in its application to the understanding of the comprehension process.

Much of the exciting work in linguistics, particularly Noam Chomsky's transformational grammar (13, 14), has resulted in a series of studies in the reading and understanding of sentences and in readability measurement [Borrmuth (10)], that confirm the importance of syntax in the comprehension process.

Many studies [see for example Levin and Turner (29)] indicate that the reader supplies his knowledge of grammar in reading to a greater extent than previously supposed. However, there does not seem to be any simple relationship between transformational grammar and the performance of the reader. The reader employs his knowledge of grammar, but not in an obvious way.

The study of Bever and Bower (3) suggests that the best readers among able college students do not read sentences in a linear fashion, but in terms of their deep syntactic structure in Chomsky's sense. Since only 8 percent of the best readers did so, and were self-taught, it suggests the possibility that others can be taught to do so.

Considerable research has been carried on within the past few years on the relation between syntactic structure and the comprehension of written text—mostly sentences. Audrey Toan Edwards (17), in a review of such studies (most of them carried out with adults and college students and far from conclusive), suggests that statements are easier than questions, posi-

tive statements easier than negative ones, and positive statements containing verbs easier than those containing nominalizations.

Even if we know more definitely than we now know what syntactic structures make sentences easier or harder, the implications of such knowledge for reading instruction are by no means obvious and are open questions for the researcher in reading.

According to Edwards, it *could* mean that the best way to program instructional materials would be to introduce sentence types in order of increasing difficulty. On the other hand, one can make a point for introducing together such corresponding forms as statements and questions in order to make clear their relationship. The findings of the Levin-Turner eye-voice span studies (27) suggest that marking phrase boundaries by large spaces, gradually fading them out, and gradually elaborating phrases, as suggested by Allen (1), might have validity as a training device.

It might also suggest programming instructional materials by including sentences containing adverbs and prepositional phrases which can appear in several positions. The child would then read all the possible sentence permutations, or read a sentence and then write prescribed transformations, so as to gain insight into the permutability of language [Hansen (25)]; Mellon (31) found this effective for improving writing, i.e., the writing became more complex in sentence structure. A tenable hypothesis is that such practice in writing may improve reading ability as well.

The Bever and Bower (3) study referred to earlier suggests the possibility of using typographical devices to focus the reader's attention on the deep structure rather than on the linear order of words.

In conclusion, reading comprehension has so far remained a mystery.

While the battles have raged over the beginning reading process and the best possible procedures for teaching the beginner, it is at the higher levels of reading where we really need to know what is happening and why. Hopefully, when we know this, with the help of some of the newer linguistic and psycholinguistic research, we may be able to design instructional and remedial methods and materials that will work better than the ones we use today.

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excellent setting for the informal presentation of theorization and empirical research on linguistics and reading. Some dramatic encounters between points of view in linguistics itself were manifested in these Reports and there occurred some surprising expansions in what, a few years ago, seemed to be the only logical implications of linguistics for reading.

This review will be confined to tracing the issues which have emerged in recent years and which are now in the process of resolution. It is organized around two echelons of language—the phonological level and the higher levels. First, let us look at the partnership that generates the research that concerns us.

Distinctions and a partnership

The philosophic formulation of a theory of signs distinguishes among a) the study of the relation of signs to the users of signs, b) the study of the relation of signs to their referents, and c) the study of signs themselves and the relations among them (9, 27). The three domains are interrelated and interdependent. The distinctions are important, however, to help keep in mind the difference, for example, between the systematic analysis of language (linguistics) and the psychological problems of learning a language or of learning how to read.

The demarcation of the three levels of discourse seems to form natural boundaries among the academic disciplines that are concerned with symbolic behavior, psychology or psycholinguistics, semantics, and linguistics. Separated disciplines, however, do not always develop coordinated theories and compatible methods, especially, perhaps, when the disciplines are themselves subject to theoretical tensions.

On the other hand some early efforts to establish a discipline of psycholinguistics were peaceful and produc-

Linguistics and Reading Instruction

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DURING THE THREE YEARS, 1964-1967,
Project Literacy Reports provided an

tive (28). More recently, language has become a testing ground for the implications of various theoretical positions in psychology (3, 6) while attempts to clarify certain issues in linguistics have occurred in the context of psychological experiments (26). In addition, a very vigorous line of investigation of childhood language acquisition plays a catalytic role.

Educational problems, such as reading, have no regard for the boundaries among formal academic disciplines and they stimulate a rapid shuttling between levels of discourse. As long as the necessary distinctions for defining subproblems are kept clear, very exciting and productive research on linguistics and reading may be expected to occur in the context of today's disputes and tensions among psychologists and linguists of various persuasions.

It may be acknowledged that Bloomfield (5) may have ventured into education somewhat recklessly. But in attempting to order his materials from the simple to the complex, after he had arrayed them in the systematic manner suggested by his linguistic analysis, he did not deviate markedly from the educational and psychological dicta of his day. By the time his contributions were noticed by the reading field (8) his pedagogy seemed to have become obsolete.

Recently Venezky (29) conceived of reading as the translation of marks on paper to sounds as Bloomfield had. On the other hand, Venezky suggested, that the "notion of sequencing materials from the simple to the complex, the heart of the Bloomfield approach and of almost all the 'linguistic' approaches . . . is a 'sacred cow' that could be reexamined." He argued, for example, that while the pronunciation of certain letters depended on their graphemic environment (e.g., *a* in *man* and *mane*) it was a matter of pedagogic choice as to whether the two phoneme-grapheme correspondences should be

taught sequentially or simultaneously. Ample data from learning studies are available to support Venezky's conjecture that "the potential generalization derived from the differentiation approach . . . certainly is greater than from the simple sequence method."

Similarly, Gibson, Farber, and Shepela (13) raised the question as to whether certain systematic, high frequency spelling patterns, could be abstracted by kindergarteners and first graders using a "learning set" procedure. Drills with negative and positive instances of several patterns were presented so that the abstraction of the superordinate principle became possible, following principles Harlow (18) had developed working with monkeys many years earlier.

While only one in twelve participating kindergartners completed the experiment, three out of five of the first graders who did showed evidence of forming learning sets by solving at least 80 percent of the problems at the end of the five-day study. The conclusion that these young pupils actively searched for an underlying pattern on principle, even if it was a wrong one, was substantiated by individual response patterns, by the remarks of the pupils, and by the fact that those who had not succeeded in abstracting the patterns scored consistently at *less* than chance levels.

The study suggests that in addition to understanding the linguistic phenomena involved in any problem in learning how to read, the educational process must be accompanied by an understanding of how the learner may cope with these phenomena. In the difference between kindergarteners and first graders, the study reiterated the obvious and pervasive educational percept that coping abilities and strategies may be expected to follow developmental patterns. In this form the implication follows that concepts such as readiness should not be considered in

general molar terms, such as "reading readiness," but can be broken down to more specific readinesses such as "readiness to establish learning sets," "readiness for phonemic or letter-sequences of X length," "readiness to handle disjunctive possibilities in the fact that the same letters may represent more than one sound," etc (21). Data of this type, it may be argued, are relevant to determining how much of which method is appropriate at what point in the learning process. The value and function of partnership of linguistics, psycholinguistics, and reading pedagogy is illustrated by the studies cited.

Theory and research on the phonological level

As far as the reading profession was concerned (2), linguists had "demonstrated the primacy of speech" over writing. It had been noted that speech was historically earlier than writing and that writing, in its modern form, is essentially speech written down. In both the foreign language field and in reading, linguistics seemed to imply to many that it is the proper sequencing of the development of communication skills for the modern literate human, that it is a recapitulation of his historic development.

For linguistics, reading was thus the "decoding" of the phonetic values of the letters upon the page (8). Even Lefevre's "linguistic approach" (21) which considered the sentence as the basic unit of communication, emphasized sentence *intonation*, or what linguists call the "suprasegmentals," as though reading were a process of making texts audible. The linguist, Charles Hockett (19), concluded that the logical essential policy in literacy training was to "teach the correlations between graphic marks and linguistic units."

Since English spelling is such a graveyard of the history of the lan-

guage, there is less than perfect certainty as to correlations between writing and speech sounds. The relative frequencies of the applicability and inapplicability of various types of correspondences between spelling and pronunciation across large samples of text may be ascertained by means of computers (31). Venezky's (29) classification scheme for the study of phoneme-to-grapheme correspondences consisted of the following: 1) predictable correspondences, including those which were invariant and those which vary according to stable rules, together with 2) unpredictable correspondences including "affix aided" ones (or those that occur as a result of a morphological change, e.g., sign \Rightarrow signal), high frequency unpredictable correspondences, and low frequency ones.

On the instructional side, Williams (33) proposed the "systematic investigation of . . . variables basic to the development of effective instructional sequences." These included concern for "sounding out" grapheme combinations, phonemic blending, phoneme differentiation, grapheme discrimination, associative learning of individual graphemes and phonemes."

When, however, Venezky (29) attempted to test empirically the degree to which the statistical properties of his sound-to-spelling correspondences were relevant to the reading process, he encountered some anomalies. His subjects were college sophomores, sixth-graders, and third-graders. His first hypothesis was that the frequency of occurrence of variant responses to unpredictable patterns would correlate positively with the frequency of occurrence of the pronunciation of real English words. He made up "nonsense" words containing some of the spellings in question and asked his subjects to pronounce them. His hypothesis did not prove to hold in all cases.

Second, he hypothesized that pro-

nunciations based on form class would vary according to syntax in sentences but would vary randomly out of text. Initial "th" is voice in English only in the case of noun markers and a few other function words (e.g., *the, there, that,*) but voiceless as the initial consonants of "content" words (*think, thing,* etc.). Venezky asked his subjects to pronounce invented, or "nonsense" words containing "th" in initial position which he presented both in list form and in the context of sentences. Contrary to expectations, his subjects *always* preferred the voiceless phoneme and they did so even in sentences that were arranged so that the invented words seemed to be function words. Indeed stress patterns of sentences would be awkwardly altered so that the invented word would appear to be a content word.

Venezky tentatively concluded that spelling-to-sound habits are strongly word oriented. It is as though "an alert were set for members of a limited group of stimuli. . . . When no limited group exists for a variant pattern, strategies based on word analogies are employed."

Much of Venezky's study suggested that additional factors other than invariant or variable letter-to-sound relationships affect the decoding of the printed page. The findings came as no surprise. Many experimenters in reading frequently cited Cattell's study of 1885 (7) which suggested that perception involved a grouping of stimulus elements which in the modern scientific vernacular they called "clanking." In the 1940's the psychological experimentation in what was called the "new look in perception" [comprehensively reviewed by Allport (1)] explored a myriad of factors accounting for variations in the boundaries and perceptibility of various kinds of "chunks."

Among the factors that were at one time or another identified in the per-

ceptibility of sequences of letters was one called "pronounceability" in the recent reading research. But rather early in the history of American linguistics, Benjamin Lee Whorf pointed out that in each language there were certain phoneme strings that were more likely to occur than others and that in writing there was a parallel in respect to letter strings (32). When "nonsense words" or perhaps better, "pseudo words" are made up by the speaker of any language, they are not comprised of a random sample of all possible human speech sounds arranged in random sequences but they are a set of phoneme strings that are very much a product of the language of their constructor. They are characterizable manifestations of the phonology of the constructor's language containing exclusively the speech sounds of his language. They are arranged or sequenced according to the constraints and probabilities of that language for sequencing its speech sounds. In short, they are possible words of the constructor's language which do not happen to exist. (*Brillig, slithey, and toves* become words only when Humpty Dumpty gives them meaning.)

In a study by Gibson, Schurcliff, and Yonas (11), *glurk* was an example of a pronounceable English pseudo-word but *ckurgl*—which had to be constructed by special effort using systematic permutations—was an unpronounceable one. Pronounceability had been objectively arrived at and verified by counting the number of various pronunciations each word evoked from readers who were asked to say them; the greater the variety of pronunciations the less pronounceable. This measure correlated quite well with ratings of pronounceability, $r=.83$.

Gibson and her associates knew from many previous studies that when pronounceable pseudo-words are presented by means of a tachistoscope for

intervals so brief that it is hard to recognize them, they are, nevertheless more easily recognized than words that are not pronounceable. It had indeed been shown in her laboratory that blind readers of braille had less trouble with pronounceable pseudo-words than unpronounceable ones. But why was this true? What was there about pronounceability which made the words easier to read? What materials could be identified as accounting for this phenomenon?

The point of the departure for the study by Gibson, Scharcliff, and Yonas was the notion that the "rules of spelling-to-word mapping suggested that mapping invariance creates larger units for reading and therefore faster processing." That is to say, the pronounceable chunk tend to occur with invariant spelling patterns. This was the very notion implied by Wier and Venezky when they added morphophonemic-spelling correspondences to their phoneme-grapheme ones in their statistical studies. But was it the "transitional probabilities"—the fact that certain two letter (bigram) and three letter (trigram) strings are more likely to occur than others—that accounted for the observed difference in the hitherto existing data, as Anisfeld believed? Or was it because pronounceable words were better "matches" to acoustic representations held by the reader and, as Levin and Biemiller believed, there was auditory encoding before final reading? Or, similarly, was it because "processing of letter-strings in reading involves encoding and matching to an articulatory representation or 'plan'" as implied by Liberman, and his associates in their "motor theory of speech perception?" Or, finally, was it because "complex morphological rules cover structural patterns of letters permissible in English words"? These imply a "kind of syntax, analogous to grammar" for phoneme-strings and letter-strings

very much like that formulated by Whorf many years earlier—and apparently unnoticed, or at least not cited, by the experimenters.

By comparing the effect of pronounceability on hearing and deaf-mute readers, Gibson and her colleagues attempted to discover whether the constructs of acoustic or articulatory representation were necessary to explain the differences between the readabilities of pronounceable and unpronounceable words. It turned out that pronounceability did indeed facilitate the reading of tachistoscopically presented words for deaf-mute subjects, as it did for hearing ones.

Then do bigram and trigram frequencies which can be processed exclusively in the visual mode remain to account for the difference in readability? The answer was "No." Measurements of bigram and trigram frequencies in stimulus materials did not facilitate the readability of the materials for either deaf or hearing subjects and correlated negatively, if at all, with the measured pronounceability of the words.

The experiment may not be taken to prove, however, that articulatory or acoustic representation does not play any role in reading. Liberman's notion of articulatory representation in the hearing of speech was formulated in the context of a mass of electrographic and myographic data. Hardyck and Petronovich (17) have, furthermore, collected convincing data indicating that speech movements play at least a facilitative role for at least some readers and for at least certain categories of text.

Since acoustic representation is, to date, not accessible to any form of direct scientific observation, the notion that we hear what we read is appealing only on a private level rather than on a scientific basis. It is credible primarily to those of us who are sometimes told we are poor and slow readers and

who subjectively think we sometimes hear ourselves when we read or write. Thus, since it was also true that in the experiment in question the *general performance* of hearing subjects was superior to deaf subjects in reading tachistoscopically presented pseudo-words, it may be advisable to think of all the hypothesized constructs, such as auditory and articulatory representation, as comprising a multiplicity of facilitative processes rather than as factors which are necessary and sufficient conditions, each competing to account completely for the phenomena in question.

The results of the experiment implied to Gibson and her associates that "pronounceability ratings . . . (measure) morphological regularity (rules governing the internal structure of English words) and that it is this kind of structure in pronounceable words that facilitates perception." The relation between the auditory properties of the words, that is, their pronounceability, was traced back to the development of the writing system which evolved in relation to sound. The experiment seemed to imply that although "writing is a surrogate for speech . . . morphological rules are rules in their own right and apparently can be learned as such."

Two linguists of different theoretical persuasions provide background. Charles Hockett (20) argued on his part that since English written words are not a simple and direct representation of spoken words ". . . a kind of representation [is to be sought] . . . from which both the actual spelling of the written word and the actual pronunciation of the spoken word are completely predictable." The unit by which this "spelling" is to occur is the "morphon," a kind of representational system or alphabet which is perhaps developed intuitively by every literate individual. Once explicitly identified, the "acquisition of literacy in English

[would involve] . . . building-in of this additional implicit level of representation." A number of problems in this formulation have already been identified by Hockett as has research in developing specifications and statistical properties of the "morphons" by at least one of Hockett's students, Daniel Kimball.

Hockett also supplied perhaps the most lucid statement of the opposing position of Noam Chomsky. Chomsky sees the basic representational system to be the general grammar of English (rather than the specific set of morphons as mediators). In the output of sentences, this grammar may generate *either* written sentences or spoken ones. "The written sentence need not be interpreted as representing a spoken sentence. . . ."

A close examination of Chomsky's view (10) reveals it to be quite radical. First he "offered several arguments [throughout his writings] in support of the conclusion that there is no linguistic justification for a phonemic level. . . . Phonemics . . . in the modern sense, is perhaps nothing more than a methodological artifact." Next Chomsky took the position that the representation of words in a dictionary "provides a natural orthography for a person who knows a language and that the relation between conventional spelling and phonological representation is very close. . . . Conventional spelling is by and large a highly effective system for a wide range of dialects because it corresponds to a common underlying phonological representation relatively invariant among dialects despite wide phonetic divergences."

For Chomsky, phoneme-grapheme or sound-letter correspondence was a pseudo-issue even before research on it was begun. Hockett's addition of "morphons" seems to provide a compromise. It moves away from the classical linguistic Bloomfieldian view

of reading to an alternative position not quite as radical as Chomsky's.

But Chomsky concludes that "sound-letter correspondence need hardly be taught, particularly the most general and deepest of these rules. . . . [They are] part of the unconscious equipment of the nonliterate speaker. What [essentially must be learned] is simply the elementary correspondence between the underlying phonological segments of his internalized lexicon and the orthographic system."

Although it is "not clear [to Hockett] how this approach might suggest pedagogical procedures other than those suggested by the classical (Bloomfieldian) view" it does seem to us from the nature of his arguments described above, and theory and data developed by his adherents, which are to be described in the following discussion, that for Chomsky, the implications of linguistics for reading come full-turf around to the methods of basal readers or "look-say," procedures.

He does so, however, with considerable and noteworthy circumspection. "Children," he notes "may well . . . hear phonetically [i.e., in terms of the minutest details of speech sounds] not phonologically." A child of six about to learn to read may not have mastered the phonological system—the system of auditory or articulatory *contrasts* on a series of relevant linguistic dimensions.

Thus, we may suppose that for Chomsky, even if the mature reader may read with underlying structures of grammar or sentence content playing an important role in his perceptions, the phonetic and phonemic analysis may be the "indicated" procedures for teaching children to read at early stages of linguistic development.

Developments at the higher levels of linguistic analysis

Chomsky's matrix for linguistics (4) distinguishes four levels: a) pho-

nology, b) apparent phrase structure, c) underlying or "logical" phrase structure, and d) semantic structure of sentences. In this formulation it would seem speech starts with perhaps some "notion" or "idea" which may be expressed by many superficially different sentences. This "semantic structure" is mapped onto an underlying or "logical" phrase structure. Transformations from this underlying structure generate a variety of sentences with apparent or surface phrase structures. For example, from a "kernel" sentence, "The poor sold the meat," transformations may be derived such as, "The meat was sold by the poor," and "The poor were the sellers of the meat."

The final expression of the sentence is achieved when the "phonological component of a language maps the surface phrase structure onto a sequence of articulatory movements." We have noted above that the final mapping may occur in written form as well as spoken, phonological, form.

A number of above average, college level readers were presented with sentences using a tachistoscope. In one task they were asked to match the sentence they were *shown* with the same or slightly different sentences they *heard*, indicating whether the two sentences were the same or different. In a second task they were required to tell whether two visually presented sentences were the same or different. In this study entitled "How to Read Without Listening," Bever & Bower (4), reported that 92 percent of the subjects were found to be more proficient at the task requiring the matching between the auditory and visual modes while the remaining 8 percent excelled in the within-mode matching. If the tentative interpretations of the investigators proved correct, it was further found that 92 percent "listening" readers tended to forget from right to left (that is to say, they remembered the beginnings of sentences

better than the ends) while the forgetting of the 8 percent "looking" or visual readers seemed to depend on the semantic structure of the sentence since they perceived and recalled key words, not particularly from left to right. The 8 percent visual readers seem to have found the "underlying subject" regardless of the word in the apparent phrase structure presented to them. The visual readers seem to have translated into simple declarative form which has the surface form most similar to the underlying phrase structure or what Chomsky calls the "kernel." It seems to be as though these 8 percent visual readers read directly for meaning. The investigators reported that the faster comprehending "visual readers" they found appear to have instructed themselves, though it may be added, the reading field has labored long and hard to produce "visual readers."

The Bever and Bower study implies that decoding at word, phrase, and sentence levels (rather than at the phoneme-grapheme level) can play a role in reading at an advanced level and, suggest as does the study by Gibson, Schurcliff, and Yonas, that, at least at advanced levels, speech or covert auditory processes need not play a role. Other studies suggesting that semantic and grammatical considerations may play a role at all levels of proficiency either do not raise the question of mediation by speech and auditory processes or suggest that these processes frequently do play a role in reading. The fact that Bever and Bower confirmed the notion that there are two kinds of readers shows that these findings are not contradictory. Since the studies all emanate from a linguistic point of departure, the need is manifested for modifying the notion that linguistics focuses on the "primacy of speech" for the teaching of reading.

study by Rose-Marie Weber,

"Grammaticality and the Self-correction of Reading Errors" (30) was based upon taped recordings of a class of first graders reading to each other—in the absence of their teachers at the end of their first year. Sixty-three percent of a substantial number of errors were of a nature that did not affect the grammaticality of the sentence (i.e., did not comprise grammatical "mistakes.") 29 percent left the sentence grammatical up to and including the error but rendered it ungrammatical for the rest of the sentence and 8 percent rendered the entire sentence ungrammatical. Among the better readers, the "high group," errors that did not effect grammaticality comprised a somewhat greater proportion of their total errors while the categories of errors tended to be more evenly distributed for the "low group." In the sample of errors that were corrected, violation of grammaticality accounted for approximately 61 percent for the high group and about 45 percent for the low group. In a sample of errors *uncorrected* by the high group, 96.2 percent were of the type that did not effect grammaticality, while 45 percent of the uncorrected errors in the low group did render the sentences ungrammatical. In short, among good readers on the first-grade level errors tended *not* to violate grammaticality and grammaticality accounted to some degree for which errors were corrected. The trends were much less distinct for poorer readers.

Weber's study raises the question as to what comprises grammaticality. If, for example, poorer readers might be—as they often in fact are—those who also speak a dialect different from the one in which the text is written, might not a grammaticality that is alien to them fail to facilitate their perceptions of the structures of the sentences and to a tendency to leave uncorrected an error that renders the sentence ungrammatical only as far as standard

usage is concerned? Kenneth Goodman (15) raised the question of dialect barriers to reading comprehension and in a number of alternative ways it has motivated and justified the exploration of the dialects of the "urban deprived" under the rubric of research for the improvement of reading. A number of researchers have been laying the groundwork that will make possible a thorough-going analysis of the relation between the syntactic structure of a reader's dialect and the dialect of the text. For example, Paul Cohen, in his "Outline of Research Results on the English of Negro and Puerto Rican Speakers in New York" (11) attempted to identify the sources of structural conflict relevant to reading. The methods used for collecting data from a stratified sample of Harlem residents included a "Perception Test" requiring, for example, discriminations between "messed" and "mess" or "messed up" and "mess up" and a "Classroom Correction Test" in which respondents were asked to put sentences such as [He pick me] into "good schoolroom English." A set of phonological features were identified in the dialect which were shown to be those that destroy the distinctions marking a) the future tense, b) noun plurals, c) third person singular, d) the present tense, e) the past tense. Incidentally, the investigator reported finding no correlation between the "Classroom and Correction Test" and the "Perception Test" (citing examples of extreme cases that reached upper and lower ceiling values without mention of a statistical measure) and remarked: "all of this would seem to indicate the possibility that much time, energy, and money expended on auditory perception training might be more profitably spent elsewhere in the curriculum. Certainly this study and the following one to be described suggest that the relevance of auditory acuity

for reading should be examined with considerable circumspection.

The implications of dialect variations for reading seem to be somewhat more complex, however, than may be at first anticipated. In a later paper, Labov and Cohen (23), in analyzing the "Systematic Relations of Standard and Nonstandard Rules in Grammar of Negro Speakers" report that many Negro speakers of the nonstandard dialects show evidence of mastering the perception and comprehension of both standard and nonstandard speech. In production, however, they translate or form all utterances in the nonstandard dialect. When two dialects in production were noted, they were found to be correlated with increasing socioeconomic status. The methods used involved the establishment of situations to evoke formal and informal communication. The findings seem to be quite in accord with observations made in Europe, and elsewhere. In French speaking Canada, for example, radio, theatre, and the press frequently use French different from that of the general public who understand, but do not use the formal language. The Labov-Cohen findings, coupled with the results and interpretations of the Bever-Bower study and Weber's examination of errors make it seem reasonable and possible that under certain circumstances and with certain types of instruction, speakers of a nonstandard dialect may be able to comprehend standard written text and even translate into their own dialect as they read silently. Certainly the problem turns out to be more subtle than it would at first appear.

Kolers (22) turned letters upside down, right to left and inverted his text in a number of studies in which these manipulations were intended to impede the skill of able college students although they were able to adjust to them. At first the experimental subjects were concerned with the

transformations and comprehended little. Later they began to read fluently showing that "recognizing a word involves processes different from the mere recognition of its constituent letters" and that syntax and semantics play a rôle in producing errors and facilitating reading.

Levin and Turner (25) explored the relations between "Sentence Structure and Eye-Voice Span" for subjects ranging from second grade to university freshmen. A device for turning off the illumination on a text at any point while a subject read aloud made it possible to measure the "eye-voice span," or the amount of text a subject could keep saying after the turn off. As might be expected, the eye-voice span was found to be statistically significantly greater for materials presented as sentences than for lists. The investigators further concluded that the number of times the eye-voice span coincided with the ends of phrases was statistically significantly greater than might have occurred merely by chance coincidence of a reader's eye-voice span ending at a phrase juncture. The rather involved measurement procedure for arriving at this may perhaps be questioned. It would have been more straight-forward to examine data as to the relative frequency with which eye-voice span coincided with phrase juncture in a large number of trials. Yet the results are comprehensibly in line with the findings of other experiments. Since this experiment confirms the well-established principle that reading occurs in terms of chunks of grammar and context, the true practical and theoretical value of the study will derive from the eventual analysis of the relationship between various grade levels, or developmental stages, and both the length of the eye-voice span and the specific grammatical structures of the stimulus materials.

Conclusion

The linguist's understanding of language seems to be bringing new dimensions to the psychologist's and reading specialist's experimentation with the reading process. But the notion of "primacy of spoken language" must be modified in light of the data reviewed here to mean only that speech preceded writing in the history of man and precedes writing in the development of individuals. Spoken language may or may not play a rôle in the processing of written language. The data seem to suggest that whether or not it does depends on the individual, his reading level, and perhaps the nature of the text. The interrelations among language systems, such as written and spoken ones or varieties of dialects, may be quite complex and vary from individual to individual. Yet linguistic structure and meaning incontrovertibly play an important rôle in reading—as does the translation of letters to speech sounds (in the case of alphabetically written languages).

The material reviewed in this paper clearly defeats any earlier and naive expectation that a "linguistic approach" might be formulated that would radically depart from previously developed instructional procedures and successfully compete with them. Indeed the doctrinal disputes within linguistics as they are manifested in connection with the reading process, seem to be but slightly modified echos of the debates between advocates of phonics and basal reading in the reading field. Yet the added sophistication that linguistics brings to the experimentation is of undeniable value.

The reviewer is encouraged by the material discussed in this paper to anticipate that investigators who have attended to linguistics are en route to identifying a number of important principles of the reading process, of how reading skill is acquired, and of

how human language processing capacities develop. There are some hints in this paper, and considerable evidence elsewhere, that among these principles is the fact that at least some reading skill and much language acquisition is the consequence of explorations and learning strategies that at least some learner initiate themselves. The implications for instruction are not that the isolation of these principles will lead to the development of "bigger and better" all-encompassing, panacea-like methods of teaching reading. Instead it may be expected that the effective and expert reading teacher a) will need to understand a rather complex set of principles, b) will have to be able to recognize each of the specific instances in which each principle is applicable, and c) will have to be able to apply an appropriate procedure (including, perhaps, appropriate waiting strategies in which self-instruction occurs) in the proper instances.

To despair of developing such expertise on the scale necessary to teach reading in the schools is to despair of improving the effectiveness of reading instruction. The inescapable facts are that for language processing there are developmental stages in maturation and learning, that there are marked variations among individuals, and that the underlying principles of learning and language processing are complex. No single, blindly-applied method can be universally appropriate. Despondency as to the likelihood of developing the expertise to cope with these facts may, in part, be generated by a history of concentrating a major portion of available resources and talent to developing relatively monolithic methods rather than to developing extensive expertise among instructors of reading. But the principles that seem to be emerging from the research generated by the partnership that introduced linguistics into research on read-

ing may call for and warrant new approaches to developing expertise among instructors of reading. The development of the germ theory did not bring medicine a panacea for curing all ills—as some might have expected at first—but led to the development of large numbers of specific drugs and curative procedures and to the development of physicians with more profound understanding of the principles of physiology and greater skill in their craft.

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An Observation of Hawthorne Effect in an Experiment in the Teaching of Reading in First Grade: A Hypothesis

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THE PURPOSE OF THIS STUDY was to observe if a Hawthorne effect was present in a controlled experiment comparing two methods of teaching reading in first grade.

Method. This experiment was appended to a three-year longitudinal study (1, 2, 3) comparing the achievement of children taught under an experimental method and children taught under a method traditional to the school system. In the longitudinal study there were three groups. Sixty-one entering first grade pupils in one elementary school building were assigned randomly to either the experimental group or to the control group. Three additional first grade classes were chosen randomly from the remaining ten first grades in the district as a subcontrol group.

Each child in the control and experimental groups was tested individually nine times during the first grade year and twice by group tests. Each pupil was the subject of a full school day time study. The teachers did not know when the time study would be

conducted until the morning of the observation. This meant that each class had planned interruptions for testing at least thirty days during the year, and unannounced observations at least eighteen times during the year. Seventeen different adults took part in these observations and testings. Both the children and the teachers, therefore, were subject to conditions which might produce a Hawthorne effect.

The experiment apparently ended for the control and the experimental teachers when their classes had been promoted to second grade. However, both the control and the experimental teachers continued to teach the following two years using the experimental and control methods. They routinely tested their pupils at the conclusion of first grade when the tests were made available.

Limitation of the study. The subjects of this observation were the two first grade teachers. The word observation is used instead of experiment because an N of two may seriously limit any experiment. A second serious limitation is the nonrandom assignment of pupils to the two first grade classes during the second and third year. Pupils were assigned routinely by the school principal. There may have been selective factors operating, since he felt that the experimental program was superior to the control program.

The tests. The Stanford Achievement Tests, Primary I, Form W, 1964 edition, were administered at the end of each first grade year. All six tests of the primary battery—word reading, paragraph meaning, vocabulary, spelling, word study skills, and arithmetic

—were administered the first and second years. The arithmetic test was not administered at the end of the third year because the teachers decided not to give it. The classroom teachers administered and scored the tests. The tests were rescored independently by two other people. The teachers had the test results of their own scoring only for the second and third years. The test results of all the tests of the first year were reported to them officially during the summer following the first year. Test results were withheld during the first school year. An analysis of variance and *t*-test were used to compare performances. The median scores for the SAT are in Table 1.

1. At the end of the first grade, both the experimental and control classes were significantly better than the subcontrol ($p < 0.01$).

2. The third year experimental group was significantly poorer than the first year experimental group ($p < 0.01$).

3. The second and third year control group were significantly better than the first year control group ($p < 0.01$).

4. The second and third year control groups were significantly better than the first year subcontrol group ($p < 0.01$).

5. The second and third year experimental groups were not significantly better than the first year subcontrol groups ($p > 0.05$).

The control teacher during the first year was visibly bothered by the apparent greater success of the experimental class. The experimental class was featured in a newspaper editorial.

TABLE 1

Median Scores of the Stanford Achievement Tests, Primary I

Group	First Year	Second Year	Third Year
Experimental	1.95	1.85	1.8
Control	2.00	2.25	2.4
Control	1.70	not tested	not tested

The school received many requests from other districts for permission to visit the experimental class. These were denied, as planned, except for one or two visitations. Most of the parents of the children in the experimental class visited and were enthusiastic. Few visited the control class. The control teacher spoke of her lack of success, and at the end of the first year disappointedly said she would change to the new method next year. She elatedly changed her mind when the official report was given stating that there were essentially no significant differences between the methods except in the single area of pronouncing words in isolation. There were approximately twenty tests showing no significant difference. She announced further that she would "show them next year." Limited observation during the second and third years of the main experiment indicated she maintained this attitude.

The evidence suggests that two kinds of Hawthorne effects may have been operating. One, the experimental teacher's performance may have been heightened by the new method and the accompanying accolades from parents, school administration, and press. Two, the control teacher's performance was depressed by the appearance of success in the experimental class and by having to defend the old method.

It is possible that a Hawthorne effect did not operate on the control teacher until the second or third years. This observation was not designed to check this. There is a need for research to check this hypothesis of positive and negative Hawthorne effect.

There are several implications for educational research if there is both a positive and negative Hawthorne effect:

1. Research studies need to be cognizant of Hawthorne effect, realizing controls for Hawthorne effect

such as seminars and visitations, may not create the same kind of effect on both the control and experimental groups. Studies which have controlled for Hawthorne effect by providing stimulating experiences for the control class teachers may have depressed the control teacher's performance and insured that the results of the experimental teaching would be superior.

2. We need measures of teachers under normal conditions before they enter into experimentation. It would have been desirable to have the SAT test scores for these two teachers for the year preceding the first year of this experiment. This would have delayed the main experiment a year while secretly collecting the base data for this experiment.

3. We may need to view with apprehension the value of longitudinal studies of children from experimental groups. Their being identified as experimental students may cause a positive Hawthorne effect on teacher or pupil performance in second, third, fourth grade, etc.

4. We may need longitudinal studies of teachers, not of pupils. It may be that some teachers respond positively to experimentation and some negatively, regardless of their assignment to experimental or control class.

5. Research designed to check the efficacy of teaching methods should pit only new designs against new designs. If a new method is significantly superior to another new method, it may then be superior. A researcher who wishes to check whether or not current method B is as good as new method A must test this in a school district using current method K, using three groups—an experimental group using current method B, an experimental group using new method A, and a control group using current method K. The control group may not be necessary, except that some teachers might become suspicious and treat one of the two experi-

mental groups as a control because they know that there has to be a control group.

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Contributions of the First and Second Grade Studies*

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DURING THE 1964-1965 SCHOOL YEAR, the United States Office of Education sponsored twenty-seven related investigations of beginning reading instruction, which have become known as "the First Grade Reading Studies." The following year, thirteen of the investigating agencies extended their research through the second grade, again under federal sponsorship, and two others continued their research in second grade with nongovernment fund-

ing. This large-scale venture into cooperative research in reading acquired its initial impetus from a meeting of the Committee on Needed Research in Reading, a subcommittee of the National Conference on Research in English, which met at Syracuse University in 1959. Additional thrust was given to the plan in October of 1960, when the group met again, this time at the University of Chicago, to set the guidelines for a cooperative investigation of beginning reading instruction. Following the Chicago meeting, William Sheldon and Donald D. Durrell spent several months each, in efforts to gain the support of the U. S. Office of Education for the research design which the committee had developed.

In the paper which follows, Edward R. Sipay explains that the plan for the "First Grade Studies" did not follow the design submitted by the NCRE committee. Nevertheless, the original motivating force for the first and second grade cooperative research was provided by the National Conference on Research in English, and it seems appropriate for the NCRE to attempt to identify the benefits which reading instruction particularly, and American education generally, have derived from the two-year project.

Viewing the cooperative reading research project nearly two years after the completion of the second grade phase, its contributions seem to fall at three levels. The first to be considered are the subjectively identified benefits, such as the establishment of certain precedents for this type of research. The second level is occupied by generalizations about school and classroom procedures--generalizations supported by observations, and in some instances, by recorded teacher and supervisor opinions. The contributions listed at the third level are those which are based on the objective data collected by the various research

*Cospponsored meeting with the National Conference of Research in English.

workers in their several projects—affirmation of the sex differences in reading readiness test performance, for example.

Of the subjectively-appraised benefits of the cooperative reading research project, certainly one of the more satisfying to the members of NCRE is the establishment of a precedent when the U. S. Office of Education finally agreed to support this type of research activity. As hinted above, Sheldon and Du-rrell had spent many months each in the effort to "sell" the cooperative research package to the U. S. Office, and even though the package which the Office eventually bought was not the one that NCRE wanted to sell, the financial endorsement of the cooperative research approach was a significant breakthrough.

As a means of making the impact of the twenty-seven first grade studies greater than the total of their individual contributions, a second benefit of the cooperative research concept had to materialize: the establishment of a coordinating center with USOE support. The coordinating center at the University of Minnesota represented another "first" in the field of reading research: since it brought together for analysis collections of data from all the individual projects. Thus, certain generalizations could be based on a sample in excess of 20,000 pupils, instead of twenty-seven samples averaging less than a thousand cases.

Another contribution of the cooperative research venture is that it provided examples of research of varying types, levels of sophistication, and degrees of precision. For those in the profession who need research examples, either for use in classes or for the guidance of students working on dissertations, the reports of the first and second grade studies provide both good and bad models. On the one hand, much of the reporting of Robert

Dykstra constitutes the sort of scientific writing that young graduate students can emulate profitably; on the other hand, one of the first grade studies was apparently so haphazardly conducted and is so badly reported that it is almost a "textbook case" of incorrect research practice. Fortunately, there is more good practice and reporting represented in the various summary accounts, but graduate students and other active or prospective research workers can learn from bad examples, at times, so even the weak links in the cooperative research chain can be viewed as contributions.

The generalizations about improvement of teaching and supervisory practices—the second level mentioned above—are those which would probably be most satisfying to the average taxpayer. Indeed, if benefits were to be judged in terms of impact upon participating school systems, this middle category of contributions would be the important one. Some of the observations concerning influences upon teachers and administrators can be supported (not proved) by data taken from questionnaires and interviews, but much of it is based on observation and experienced judgment.

It is almost inevitable that teachers, working in experimental classrooms under the close supervision of the research directors of their respective projects and with at least occasional inspiration from outside professionals, would function more efficiently than in classrooms where these extra stimulations did not apply. Many of the teachers in the various studies were assigned to teaching reading by methods and/or materials which they had not used previously. In addition to the special effort normally expended in the utilization of new materials, there was the extra motivation provided by the awareness that the supervisory staff was paying special attention to proce-

dures, and the further knowledge that the results of the year of instruction would be evaluated much more intensively than usual. Besides the motivational boosts, teachers were aided in efficiency by special meetings with the authors and developers of materials in some cases, and by evaluation specialists who defined the conditions and materials of appraisal. Even the teachers who were involved in the traditional "control" classrooms attended stimulation meetings and were given extra supervisory help in the attempt to minimize the Hawthorne effect. Under circumstances such as these, certainly most teachers would be more efficient than if the "supercharging" forces were not present. Perhaps it is even reasonable to assume that some of the effects of this extra motivation have not entirely disappeared in the ensuing years.

In the matter of evaluation alone, the impact of the first grade studies must have been considerable. Prior to the experimental year, most first or second grade teachers would have had only a casual knowledge of the fundamentals of evaluation and appraisal. Involvement in the cooperative research enhanced their understanding of appraisal techniques and materials in several directions: 1) they were forced to scrutinize the objectives of both the total program and the short-range planning, 2) they found themselves examining materials and evaluation procedures in terms of their goals and objectives, 3) they were confronted—to a greater extent than usual—with the limitations of some of the typical measures, such as reading readiness tests, and 4) in some projects, teachers and supervisors were involved in developing local instruments and techniques for appraisal. Some reviewers have argued that the use of "home-made" tests and other evaluation devices weakened the first grade cooperative

research. From the standpoint of scientific objectivity and input into the coordinating center, the use of locally developed materials was unquestionably a limitation, but in terms of the in-service education of the participating teachers, the process of developing such measures was a distinct asset.

Another benefit to the participating school systems emerged as certain teachers learned to use supplementary methods and materials which they had ignored previously. For example, the study in Cedar Rapids, Iowa included a literature-based approach to beginning reading with certain of the Little Owl books functioning as the basic instructional material. Not only did this expose certain Cedar Rapids teachers to a different methodology and materials, but they had the advantage of several consultations with Peggy Brogan during the course of the experimental year.

More than half of the directors of the twenty-seven first grade projects were university professors, almost all of whom were well-versed in research theory practice. Another contribution of the cooperative research activity, therefore, was the increase in teacher awareness of the role of research in educational practice and curricular modification. As teachers and supervisors became aware of the conditions necessary to ideal educational research, they also realized that some experimental variables are very difficult to control. For example, teachers and project directors discovered that control of daily reading instruction time is almost impossible in a study which involves many teachers in different school buildings.

The third category of contributions of the cooperative first and second grade studies includes the data-based findings which should influence educational practice in the future. Some of these findings could be considered af-

firmations of concepts regarding reading instruction and education in general, and include the following:

- Knowledge of letter names and ability to differentiate between word sound were the better predictors of reading success as measured.
- No one pupil characteristic (knowledge of letter names, for example) was so vital that weakness guaranteed nonsuccess in learning to read.
- Minor variations in class size did not seem to affect learning (teaching) efficiency.
- The younger first graders learned to read slightly better than their old classmates.
- The length of the readiness tests was highly related to their predictive efficacy.
- Girls manifested more readiness for beginning reading than boys.
- Measured reading achievement at the end of grade one was highly correlated with measured reading ability at the end of second grade.

In addition to the support for the preceding seven commonly-accepted generalizations, the cooperative research provided evidence concerning the following views which were not as generally endorsed in the profession:

- Performances on individual oral reading tests correlated highly with performances on group silent reading tests.
- Children who were skillful at reading phonetically-consistent words were also skilled in reading the phonetically-irregular words.
- The high correlations between the measures of reading achievement indicated that end-of-first-grade reading ability is basically a function of a small number of skill factors—probably of ability to recognize words and ability to attach meaning to the recognized words.
- The indices of teacher effectiveness were only slightly related to reading achievement. Since, however, there were definite teacher (class) differences in achievement within a given method of instruction, the validity of the teacher efficiency ratings must be questioned.
- None of the types of instruction seemed to favor either sex, although the greater initial readiness of the girls carried through to greater reading achievement at the end of grade one.

Perhaps the most significant conclusion reached by the staff of the coordinating center is one which is not easily assigned to the foregoing categories—that future research in beginning reading should focus on teacher character-

istics and learning environment characteristics, rather than on methods and materials. This important implication of the cooperative research has been incorporated into the philosophy of many professional educators for some time, but in the interest of circulation the mass media have magnified the controversy between analytic and synthetic methods and materials, and altogether too many teachers and administrators have been "conned" into looking into the magnifying glass. If the results of the cooperative reading research projects in grades one and two can cause a shift in research emphasis away from the artificial controversy between whole-word and word-analysis methods and toward the scrutiny of teacher traits and learning situation qualities, they will justify the million and a half dollars the USOE has invested in the total project.

An Evaluative Look at the Cooperative Studies of Reading in First and Second Grade: Limitations*

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THE PURPOSE OF THIS PAPER is to point out the need to exert caution in interpreting the reported findings of the USOE reading studies. It may sound negative at times, but a paper dealing with "limitations" hardly could be positive.

Since the topic is "limitations," it seems only fitting to begin by indicating the limitations of this presentation. First, except for the two final reports of the coordinating center, the comments are based primarily on journal-

*Cosponsored meeting with the National Conference on Research in English.

articles, and not upon the complete reports of the individual-projects. It is not always possible for a writer to put as much data into an article as he would like. Secondly, the limitations cited are not true of every study, nor are they necessarily true of a majority of the studies. Thirdly, it should be realized that some of the limitations would have been difficult, if not impossible, to overcome. Finally, it should be noted that some investigators, particularly Bond and Dykstra, acknowledged the limitations of their studies.

All of the following limitations, and possibly others, should be considered in interpreting the findings of the user studies, particularly where conclusions are drawn concerning the relative effectiveness of methods.

Implementation of the methods. Chall (3:569) stated that among the shortcomings of studies in which approaches have been compared ". . . have been the failure of investigators to account adequately for the teacher's implementation of a given method and for other teacher characteristics that may be significant in the achievement of pupils." In her study (3:574) she found that a discrepancy existed ". . . between what teachers said they do in first grade reading and what they were observed to do in their classrooms," and that ". . . teachers using one given method vary in their implementation of that method: . . ."

Even though Chall's findings (3:571), were based on a limited number of observations on a small number of teachers, they suggest that if methods are to be compared, it would be quite important to determine exactly how teachers were employing the methods. If such a variable were not controlled, any conclusions drawn from the data regarding the relative effectiveness of methods certainly would be open to question. The manner in which and the extent to which such tools were exerted varied greatly

from study to study. In some studies, teachers kept logs; in others, teachers were observed by various personnel on what appeared to be a very limited basis. Many studies did not report any attempts to control implementation of the methods.

Neither was the amount of instructional time devoted to the teaching of reading held constant from one study to the next.* In fact, it was difficult to determine if equal time were given to treatments within many projects. The individual reports bear witness to Stauffer's statement (21:564) that "Reading instruction time could not be defined so as to be acceptable to all twenty-seven studies. Much effort was devoted to an attempt to define reading instruction time at the coordinating center meetings, but to no avail." The following quotes from three different studies illustrate the differences:

1. All classes . . . spent the regularly scheduled amount of time in reading activities. It was not possible to define the limits of formal reading instruction in the individualized method since the complete language arts program was involved. However, the classes of both methods spent comparable time on reading and related activities, (20:598).
2. . . . teachers were requested to keep a daily log and to average approximately two and one-half hours per day for direct reading instruction and supportive activities (23:637).
3. . . . the time was held constant to a total of sixty minutes per group (18:655).

Other factors concerned with implementation of program also should be considered. Differences existed in instructional programs labelled as being the same method. For example, Stauffer (21:563) reported that after attempts to coordinate three studies on a common language arts basis, the directors concluded the approaches

*It is realized that low correlations were found between instructional time and some final measures, and that how the time is used is more important than the amount of time allotted.

were similar, but not the same. Likewise, at least five different basal series, two linguistic programs, three phonic programs, and even two different i.t.a. programs were employed in the studies. Therefore, results concerning "methods" cannot be generalized to all programs having the same general label. For example, basal reader programs vary (13), and only five such programs were identified in the projects. Furthermore, even though the Scott, Foresman program was used most widely, the same edition was not utilized in each project. Nor was only one basal series used in a given project (e.g., 25:662). In fact, in one study (7:591), teachers used "... a popular series they had not tried before, since no specific basic program was designated." Similarly, it also might be argued that i.t.a. is an orthography and not a method. Moreover, methods such as the sensory-experience treatment (2:8) were not always clearly defined. Nor, as Dykstra (4:39) pointed out, was it always possible to determine how much of the pupils' achievement at the end of the second grade was a function of his initial instruction in a given medium or controlled symbol-sound association pattern, and how much was a function of his later instruction in some other type of program.

It would be of interest to learn if certain practices could have been inhibiting factors. For example, only one study (11:27) indicated that basal-reader children were allowed to use above-grade-level material, and then only if permitted by district policy. Therefore, it is possible that such children did not learn higher level skills because they were not exposed to them.

Nor can the results of the projects be generalized to all children. Discounting the obvious limitation imposed by individual differences, the findings were inconclusive for a num-

ber of reasons. The purposes of the original twenty-seven studies varied greatly, and where methods were compared, no one method proved to be superior for all children in all aspects of reading as measured by the tests employed. Furthermore, the compositions of the populations varied from study to study. Some studies were conducted in large urban areas, others in rural areas, and some in suburbia. The children in these areas differed in cultural, socioeconomic, and even language backgrounds. Also, there was some indication (9:629, 19:650) that the results were not always the same across all levels of intelligence.

Because of the aforementioned limitations, it is impossible to state absolutely that one method was better than another for all children.

Teacher variables. In addition to the limitations imposed by differences in the implementation of the methods with widely differing populations, factors concerning the teachers themselves may have influenced the results of the studies. Teacher variables must have been operative, for as Fry (5:668) pointed out, "The variation between classrooms [within a method] was much greater than the variation between methods. What this means is that some factor, such as ... better teaching, influenced the class mean reading achievement scores much more than the methods used." Dykstra (4:164) also reported that, "In general, projects appeared to have a greater influence on the reading ability of pupils than did the particular instructional method or materials utilized. Specific programs were relatively effective in one project, relatively ineffective in other projects. On the other hand, all programs used in the same project were found to be quite similar in effectiveness. This would indicate that the entire instructional setting is involved in the effectiveness of an instructional program in

reading. Differences in method or materials alone do not alter, to any great extent, the reading growth of pupils." Although they reported only slight but positive correlation between teacher characteristics and reading achievement when all studies were included, when Bond and Dykstra (1:200) compared the five highest-ranking projects with the five lowest-ranking projects, the following teacher characteristics were found to be significantly different: supervisor ratings of class structure, class participation, awareness of an attention to individual needs, and overall competence of teachers.

Thus, it would appear that teacher characteristics may have influenced the outcomes of the studies. Few projects, however, reported any attempt to control for the effect of teacher variables.

Teacher enthusiasm is another variable which might influence the results of a study, particularly a short-term study. The control of this variable, however, is hampered by the lack of an adequate measure of enthusiasm. It is doubtful that all teachers were equally enthusiastic about a particular method. This possibility was indicated by Stauffer's comments (22:20) and MacDonald's study (12:645) in which three of the ten experimental classroom teachers "... withdrew from the experiment after it was begun because they felt unwilling or unable to satisfy the experimental conditions." Teacher attrition, as well as teacher enthusiasm, could have influenced the results of certain studies. For example, changes might have occurred in the data if the three teachers had remained in MacDonald's study.

The assistance given to teachers, if for no other reason than the possible Hawthorne effect, was not consistent from study to study or within a study. Disregarding the question of effectiveness, such functions as in-service train-

ing may have been a factor. For example, in one study (7:591) "... all teachers were given equal opportunity for extensive in-service training; while in another study (20:598) the teachers using one approach received a three-week workshop and had three all-day evaluation sessions whereas the teachers using another method had a two-day workshop and "... were visited less often because adequate materials were available and they were experienced with the method."

Assignment to treatments. It is possible that in certain studies, treatment groups were not "equal," thereby giving an advantage to a particular treatment. In their coordinating center report, Bond and Dykstra (1:152) wrote "... there was evidence of non-random assignment of pupils to treatments in certain projects. In some cases there were substantial differences in pupil performance on pre-measures for the experimental treatments. The analysis of covariance was used to adjust for pre-measure differences, but there is a question of how adequately this statistical technique adjusts for differences in capabilities between groups."

The manner by which children, or classes, or teachers were assigned to treatments was frequently not reported. When reported, the variety of practices became evident. In one study (20:598), "Pupils were assigned to classes by a random method," but teachers were assigned by individual preference for an approach. In another instance (23:636-37), the teachers were selected at random from volunteers, while nine first grade classes were randomly selected from two of three districts, and one district contributed its entire first grade population of eight classes. In a third study (8:632), "There was random assignment of four methods to schools, two methods to each school; random assignment of teachers to the two meth-

ods within the school; and finally random assignment of pupils within each school to the two methods."

Attrition of subjects. The attrition rate of subjects was fairly high in some studies. For example, in one study (17:602-603), complete data were available for only 73 percent of the original 424 subjects. It is conceivable that such losses could have influenced the final results of any study. Indeed, there is some evidence to substantiate this possibility. Dykstra (4:166) reported that the generalizability of his findings were limited because of nonrepresentative retention. As he (4:166) stated, "For some reason, non-persist pupils in one treatment were better achievers in first grade than were non-persist pupils in the other treatment, while the reverse was true for pupils who persisted. This nonrepresentative retention may be a factor influencing the results. Furthermore, in almost every instance, the pupils who persisted through the second grade were significantly superior in first grade achievement than were pupils lost during the second grade phase of the study. Therefore, pupils on whom results are reported in this study are superior to pupils from the participating projects in general." At the risk of oversimplification, what this all means is that a particular treatment or treatments may have achieved higher scores because their "better" subjects were left to take the tests.

Experimental variable. As Bond and Dykstra (1:215-16) pointed out, "The decision about whether to use classes or individuals as the experimental variable in educational research is crucial, because it may well affect the conclusions drawn from an investigation. Typical sampling procedures, in which a treatment is assigned to a class, dictate that the class be the experimental unit. Yet, often in these situations data are analyzed on individuals rather than on classes. Moreover,

even if children are randomly assigned to a class, there is still a great deal of logic behind using the class as the experimental variable. Children within a class are exposed not only to the same treatment, but also to the same teacher, same class size, same class interruptions, same construction noises, and same epidemic of influenza. To treat individuals as if the class did not exist seems a questionable procedure."

The possible effect of the use of the individual rather than the class as the experimental variable also can be found in the coordinating center first grade report. It (7:182) stated that, "It is evident from the data presented in this chapter that the data analysis based on class means as the experimental unit was much more conservative than an analysis based on pupils. Furthermore, it was apparent from the design of most of the individual projects that the class mean was clearly the appropriate experimental unit. However, the data reported on the tables in this chapter clearly demonstrate that quite different findings regarding the relative effectiveness of methods would have been obtained had the individual analysis been considered the appropriate technique." By way of example, in a comparison of two methods, Bond and Dykstra (1:176) found that "Whereas the analysis of variance using class means as experimental units produced only two significant treatment differences for the various outcome measures within projects, the analysis of variance which employed individuals as the experimental unit reported eleven significant treatment differences. The differences in the two analyses of covariance were not as striking but followed the same trend."

Because they used the individual rather than the class as the experimental unit in most of the individual projects, the conclusions based on the obtained statistically significant differences may not be valid. If the appro-

appropriate experimental unit had been used, a statistically significant difference may not have occurred. In short, there might have been little or no "proof" that one method produced better results than other methods.

Practicality of statistically significant differences. Even when statistically significant differences are found, one should inspect the mean differences to determine the practical importance or value of such differences. As Bond and Dykstra (1:139) stated, "However, with the large number of comparisons involved one would expect a substantial number of differences to reach statistical significance on the basis of chance alone. Furthermore, a large sample was employed in this investigation. As a result, a relatively small difference between treatments might be statistically significant." By way of illustration, they (1:139) indicated that raw scores of 18, 19, and 20 on the Stanford Word Reading Test result in the same grade equivalent, 1.7. "Therefore, two groups would achieve the same grade equivalent even though one of them averaged 18 correct answers on the Word Reading Test while the other group averaged 20 correct answers. A raw score difference of this magnitude in this study in many instances would be regarded as statistically significant."

Test employed. According to Stauffer (21:564), "The tests used to measure readiness, intelligence, and achievement leave much to be desired, and this is a shocking indictment. A careful reading of the reviews of the tests in *Buros' Mental Measurement Yearbook* will give any reader much cause for concern. Some of the tests used were of the homemade variety with no established reliability or validity, and the results must be interpreted with the utmost caution."

There is some evidence that the instruments were inappropriate for use with certain project populations. The

Spanish-speaking first graders in one study (10:40) attained a large number of zero scores on the instruments, and similar results (3:574-75) were reported for culturally disadvantaged children. Therefore, some measures were of doubtful validity for such populations. Also, it is impossible to assess exactly what effect high numbers of zero scores and restricted ranges of scores had upon the reported findings.

The tests employed may have had a bearing on the results obtained. According to Reid (17:603), "All of the midyear test results showed a definite tendency for children to score higher in those tests which measured the skills in which they had received direct training. The closer the test resembled the learning situation, the more likely a significant difference was found between two methods, favoring the method with closer learning-testing resemblance." Schneyer (19:651) made a somewhat similar observation. "One conclusion that might be drawn from the data . . . is that pupils tend to obtain better results on criterion measures that employ vocabulary similar to the vocabulary to which they are accustomed." In short, if different measures had been employed, the possibility exists that different results might have been obtained. This was illustrated by the study (15:729) which reported that children using i.t.a. materials "Have higher comprehension as indicated by instructional levels and reader level achievement in all years. [However,] Standardized Test achievement in comprehension shows that the i.t.a. population does not differ from the *To* population."

Possible limitations of other instruments also were indicated. For example, Hayes (9:628) wrote that "The results of the attitudinal assessment were somewhat contradictory. The PWP (Phonics and Word Power) group scored significantly higher in the San Diego Attitude Inventory, but this

group read the smallest number of books."

Duration of the studies. The danger of drawing final conclusions based on one- or two-year studies was best stated by Dykstra (4:165) who wrote, "Terminal reading ability cannot be predicted on the basis of reading achievement after two years. The possibility exists that programs which appear to be superior in terms of achievement in the first grade and second grade may lose that superiority in terms of reading ability in later years. It is even possible that programs which appear superior after the second grade actually turn out to be less than adequate programs by the end of the sixth grade. Generalizing about the effectiveness of the programs must take into account the fact that the analysis to date has considered only a relatively small segment of the developmental reading program for elementary school pupils."

In certain studies, findings "changed" from one year to the next. For instance, in one study although i.t.a. students were inferior in spelling to the other treatment group at the end of the first year (5:668), by the end of the second year there were no statistically significant differences between the mean performance of the two treatments (6:689).

Hawthorne effect. Some directors of the individual studies, such as Mazurkiewicz (14:607), Ruddell (18:655), and Vilscek (24:33), attempted to control for the Hawthorne effect. Yet, as Bond and Dykstra (1:152-53) pointed out, "Another limitation which might influence the results is that there appeared to be differences among projects in the extent to which the Hawthorne effect was controlled. It is likely that the newer programs profited from the increased motivation, the greater teacher and parental interest, the awareness on the part of pupils and teachers that experi-

mentation was going on, and similar factors usually associated with new methodological techniques. The extent to which these extraneous factors were controlled in the various projects undoubtedly influenced the results. In this regard, it is likely that the less traditional instructional projects profited from whatever Hawthorne effect was present in the investigation."

Reporting of findings. Although in the strictest sense it is not a limitation of the studies per se, the reader should examine carefully the data reported and the conclusions drawn from these data.

In at least three tables (7:592), (14:608), (15:726), there apparently were errors in the data reported. These may have been typographical errors, nevertheless the information was inaccurate.

The need to understand what a test actually measures was illustrated by the study (14:608) which compared the instructional levels attained by two treatment groups. The reader should realize that the test employed, the Botel Reading Inventory, measures the ability to pronounce words in isolation, and does not involve comprehension of connected discourse. Furthermore, the terms "Instructional level" and "reader level," which apparently were used synonymously, are determined by correct pronunciation of 70-90 percent of the words in the Word Recognition Test, which consists of twenty words per reader level.

Other project reports also illustrated the need for reading carefully. One study (20:595-96) reported that "After ten days of instruction the individualized class (IR) knew significantly (.01 level) more letter names and phonemes than the basal reader class." If both treatment groups did not receive such instruction, and there was no indication that they did, the results are not too surprising, especially in light of the previous comments in

this paper regarding the possible influence of the tests employed.

As for the conclusions which were drawn, perhaps the most paradoxical was the one in which the investigator (16:621) concluded that one method allowed her to provide better supervisory service, despite the fact that the only statistically significant differences found favored the other method.

Summary

The following limitations should be considered when interpreting the findings of the used reading studies:

1. The manner in which a program was implemented by the teacher probably varied within and among projects.
2. Differences existed in instructional programs given the same label.
3. The effect of teacher variables was not tightly controlled.
4. The manner in which subjects, teachers, or classrooms were assigned to treatments varied greatly from project to project.
5. The children who remained in a given study were not always representative of the original population.
6. The appropriate experimental unit was not used in most of the individual projects.
7. Statistically significant mean differences are not always of practical value or importance.
8. The populations differed greatly as to their characteristics from study to study.
9. The tests employed in the studies may have had a bearing upon the reported results.
10. The long-range effects of the methods have not been determined.
11. The innovative methods probably profited from whatever Hawthorne effect was operative.

Finally, although not really a limitation, but rather more of a caveat, the studies should be read critically before accepting the findings and conclusions.

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Implications for Further Research on Beginning Reading Instruction*

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Conference on Research in English first proposed a nationwide cooperative study of approaches to beginning reading. In the light of this relatively short time period, the work during those nine intervening years and the commitments of hundreds of people and hundreds of thousands of dollars takes on major significance. Moreover, the realization that the findings of the cooperative study are considerably less than had been hoped for is, in itself, significant. Indeed, only the naive would have expected that such a pioneer effort would produce definitive results. The hopeful, no doubt, wished for larger coefficients of correlation and for more significant differences to be reported. For those of us who have been in the field of reading for a long time, however, the results of the twenty-seven cooperative studies of first-grade reading instruction are not at all dismaying nor are they discouraging.

On the contrary, there is much to be learned from the negative factors and from the neutral factors revealed by the reports. In addition, there are many bases established by the cooperative studies which can be used for launching sequels and/or replications elsewhere. It is my good fortune to have the opportunity of projecting some of the elements which might properly constitute a galaxy of sequels to the first-grade studies.

The following questions could well be the focal points for the design of a future study.

1. How can we design a cooperative study which will be more unitary?

IMPLICATIONS:

More conformity in materials investigated in all studies. This would require, for example, that the same basal reader should be used as the control factor in all studies. It would also

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mean that the "language-experience" method, as delineated by Van and Claryce Allen, should not be confused with the "language-experience" readers produced by Chandler Publishing Co., nor with the total language arts approach investigated in Project #2679 by Russell Stauffer.

Conformity to more definite delineations of approach and materials would provide a more accurate understanding of results. This always is a problem when dealing with polysémanatics. The fact that an approach is labeled as "linguistic" by its publishers does not guarantee that it corresponds to another competing package of materials which also claims linguistic ancestry.

Considerable semantic license was evidenced by the fact that Friés, Stern, Bloomfield-Barnhart, Stratemeier-Smith, McCracken-Walcutt, Royal Road, and Buchanan were all used in varying degrees in several studies, yet few distinctions were made to recognize the differences in these approaches which were categorized as "linguistic." Terms such as "modified linguistic" and "phonic linguistic" need to be sharpened. Moreover, a close look at Royal Road would eliminate it from a clearly-defined linguistic category.

The same control over materials should be exercised in the selection of "supplementary and enrichment" materials and "multi-sensory" materials. A new cooperative study should help one to control such conglomerates as were phased into Russell Stauffer's super-enriched "language arts" approach (Project #2679) and Donald Cleland's enrichment materials (Project #2729) and Sister Marita's "enrichment" (Project #2659).

So-called "intensive phonics" should be the same in all projects utilizing it; or, if not, statistical design should account for the differences of increment resulting from the inclusion of two or more distinctly different "intensive phonics" materials.

Only by defining and controlling materials can we obviate semantic confusion.

More conformity in methods utilized in all studies. To achieve conformity in methods would require uniformity in training and continuity in supervision of all teachers employing one particular method. A second cooperative study of beginning reading instruction would most certainly need to employ the most rigid training and supervisory safeguards to attempt to assure conformity to the methodological components which are the essence of each approach. Periodic feedback from supervisory observation and videotape in-class recordings should be built into individual and group sessions for teachers using each method. Such evaluative sessions should be programmed into the school day for all teachers and supervisors engaged in the project. Only through such feedback sessions can the variations due to teachers' individual interests be kept to a minimum.

More conformity in reporting techniques. Perhaps it would be beneficial if an editor would be employed to provide unity in reporting results. Such assistance would probably be most helpful at the level of reporting which has an impact upon the classroom teacher. One must assume that researchers in the field of education can read the unedited reports describing the computer printout, but one has only to read the report résumés which have appeared in several periodicals and journals, as well as the ERIC print-offs to realize that they are incomplete, inadequate, incompatible, and provide the classroom teacher with little that can be translated into improved reading instruction.

A project of this magnitude must have an element of pragmatism to justify its existence. This means that there is urgency that the reporting be

edited for the classroom teacher, as well as embellished for the researcher.

2. What would happen if we expanded the study to include all of the approaches to beginning reading?

IMPLICATIONS:

I have just completed a five-year study of all of the approaches to beginning reading exclusive of the fifteen basal reader series printed in the United States. At the present time there are 75 distinct approaches on the market, and by the time my book is published later this year, more will have mushroomed.

To program 75 approaches plus 15 basal readers is a major undertaking, but it is not impossible. In fact, it is quite feasible with modern computer technology. We have no excuse for not doing it. The very existence of so many approaches is a mandate to do it.

If the research were designed properly—and there is no reason to suppose that it would not be—the resultant computerized printout would provide us with enough data to keep us busy for another decade.

This is truly an exciting eventuality. Such a research design has the potential of supplying the data from which we can know about the strengths and limitations of each approach. From such data, we could then know the relative increments we could expect from the addition of Phonovisual, Hay-Wingo, Landon, Murphy-Durrell, Bremner-Davis, Scott, Cordts, McEathron, Halvorson, or any other basic phonemic program.

Moreover, we could have the data which enable us to compare the various systems against each other.

Similarly, the several "language arts" approaches could be compared each to each, and the "linguistics" approaches could be evaluated in a comparable way.

We would be faced with the neces-

sity of expanding the study to include pre-first grade reading experiences.

Knowledge of letter names as predictors of success in reading comprehension at the end of first grade is a good start provided for us by the Cooperative Study. But a second cooperative study must investigate the claims made by a number of proponents of early reading instruction. Any study of beginning reading instruction which does not include this will be ignoring the realities of the 1970's.

In similar fashion, a new and total investigation into all approaches must include in its research design a thorough and systematic study of the claims being made by promoters of visual-perceptual-discrimination materials.

3. What instruction in beginning reading can be achieved through computerized programs?

IMPLICATIONS:

Through a new and massive investigation of beginning reading instruction, we could discover what elements of the mechanics of beginning reading can be achieved equally as well (or better) by means of computerized programs as by traditional teacher-group instruction.

We could discover which of the approaches is most effective in a computerized programed form.

We could discover which elements of which approaches are optimum in computerized form, and which are optimum in traditional teacher-directed form.

We could discover what elements of beginning reading can be achieved adequately through a computerized program for an entire group, and which elements must be programed for individual learning and for individual feedback.

4. Do we really know the nature of beginning reading?

IMPLICATIONS:

Which facets of reading contribute most to the total process of comprehension?

How much more does phonemic analysis contribute to a whole-word approach?

How much more does structural analysis contribute to a whole-word approach?

When in the process of beginning reading instruction are word attack skills optimum?

Is it valid to use several basal readers? Are they sufficiently compatible? Can we discover essential differences between groups using different basal reader series?

What is the relative contribution made by instruction in each of the specific essentials? What is the optimum combination of essentials and timing?

If intensive phonemic instruction is an essential, when is it most effective—before, during, or after a whole-word approach?

What is the increment supplied by practice in writing manuscript letters concurrently with the learning of grapheme-phoneme relationships?

What is the optimum teacher-pupil-computer ratio for each approach and combination of approaches?

What changes in orthography are imperative to modernize communication through reading as we move toward the Twenty-First Century?

Conclusions

We are, indeed, moving toward the Twenty-First Century. If the present cooperative study had its genesis in 1959 and we are just getting around to considering the results in 1968, isn't it time that we were getting on with the design for the second cooperative study? If planning grants could be acquired so that a research design and operational procedures and materials could be marshalled for such a massive research study as I have envisioned, it

is unlikely that such a study could be started before 1975.

Analysis from the computer printout from such a study would run us into the 1980's. Adjustments of materials, methods, training, and tool-up for implementing the findings would find us close to 1990. Five- and six-year-olds in 1990 would be moving into the Twenty-First Century as the first products of what we plan today.

Four Instructional Approaches to Beginning Reading—Three Years Later

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BEGINNING IN SEPTEMBER 1964 and continuing until June 1967, a longitudinal study was conducted in the public schools of New Castle, Pennsylvania to determine which of four approaches to beginning reading instruction was the most effective. In addition, a modified replication of the original study was begun in September 1965 as an additional check upon the validity and reliability of obtained results. This replicative study was also concluded at the close of the school year last June.

Method

The independent treatment variables in both studies were 1) a basal reader program published by Scott, Foresman and Company, 1962 edition, 2) a phonics program utilizing correlated filmstrips and published by J. J. Lippincott Company, 1963 edition, 3) a combination program which used the materials of Scott, Foresman (No. 1

above) supplemented with phonic booklets (*Phonics and Word Power* published by American Education Publications, 1964 edition, and 4) a language arts approach using the initial teaching alphabet as a medium, represented by the materials of i/t/a Publications, Inc., 1963 edition. The *Treasury of Literature Series* of Charles E. Merrill Books, 1960 edition was used after i.t.a. pupils made transition to traditional orthography. Teachers were restricted to using only those methods and materials recommended by book company consultants for instructional purposes, but wide independent reading was encouraged.

The following dependent variables were included during each year of the study: 1) a group, standardized silent reading achievement test (Stanford Achievement Test), 2) a reading attitude inventory (San Diego County Inventory of Reading Attitude), and 3) a record of the number of books read independently. In addition, randomly selected samples of both populations were given certain individual tests of oral reading achievement including Gates Word Pronunciation Test, Fry Phonetically Regular Words Oral Reading Test, and Gilmore Oral Reading Test. In January and May of first grade, the Primary 1 Battery of the Stanford was administered, while the Primary 2 Battery was used in January and May of second and third grades, and the Intermediate 1 Battery was administered in June of the third grade.

The population of the study was randomly assigned, by attendance areas, to the required number of classrooms and treatment groups. The original study first included five classes for each of the treatments, but the illness of one Scott, Foresman teacher during first grade resulted in the loss of her class from the study. Therefore, nineteen classes and 365 pupils were included in the compar-

isons drawn at the end of Grade 1; 302 pupils remained at the end of Grade 2; and third year comparisons were made on the 262 students who remained at the end of Grade 3.

In the replicative study, only three classes were selected for each of the treatment groups. Comparisons were made on 248 first grade students and 213 second grade students.

Consultant services were provided to the teachers of the original study by the participating book companies. This was done to assist the teachers in following appropriate procedures, and to help them to understand the philosophies of the companies whose materials were being used. The consultants conducted classroom observations followed by in-service workshop meetings for the teachers in the original study, but since teachers who participated in the replication were almost always those who were in the original study, classroom observations by the consultants and in-service work was largely eliminated in an attempt to control for Hawthorne effects.

Frequent random, unannounced classroom observations by administrative personnel were employed to determine the extent of teachers' adherence to prescribed procedures and to evaluate teaching effectiveness. During these observation periods, each supervisor independently rated the teachers on the Hayes Teacher Rating Scale. Twenty classroom visits were made during the first year of the original study, and twelve visitations were made to each classroom of both grades during the second and third years.

All teachers were also required to submit logs to the field director as another method safeguard. Teachers in the original study kept logs during alternate weeks on which they summarized the objectives for each lesson, the skills taught, the materials used, the grouping procedures followed, and the time spent teaching reading for each

day. Since almost all teachers in the replication had kept and submitted logs during alternate weeks in previous years, they were only required to record a summary of the materials used and the grouping procedures followed at the end of each month. This variation in requirements was followed as a means of further reducing Hawthorne effects in the replicative study.

The local school district required that reading be taught for 560 minutes per week during the first grade, 530 minutes per week during second grade, and 415 minutes per week in third grade.

Statistical analysis

Statistical analysis consisted of correlation coefficients, a 4×3 factorial analysis of variance and covariance (where appropriate). In this analysis, factor A consisted of four methods of teaching reading, while factor B represented three levels of intelligence (high, average, and low). In the third year of the study, the preceding analysis involved random casting out of cases to produce an equal number of cases per cell. This resulted in 15 cases per IQ level, 45 per treatment, and a total N of 180 in Grade 2 and also in Grade 3. The Stanford paragraph meaning scores were also analyzed for all students by an unweighted means analysis with very similar results to the analysis for just 180 pupils.

For the analysis of variance involving 180 cases per grade, a Tukey (a) multiple range test was employed to determine which differences between means were contributing to significant F ratios. When analysis of covariance produced significant F ratios, Winer's multiple F test was used to compare differences between each appropriate pair of means.

Bond and Tinker reading expectancy scores were compared to grade equivalent scores for word reading,

word study skills, and paragraph meaning of the Stanford Achievement Test.

The analysis of variance, covariance, and correlation matrices were performed at the Computation Center of The Pennsylvania State University, University Park, Pennsylvania, in the final year of the study, while in the first year the data were analyzed by the University of Minnesota computer.

Results

While only a summary of some of the major findings for the original study are reported in this paper, the replicative study results largely confirm the findings of the original study.

The mean intelligence quotients for the third grade treatment groups were as follows: Scott, Foresman—98.49, Lippincott—98.58, Phonics and Word Power—96.98, and i.t.a.-Merrill—97.96. The mean IQ's, by levels, of the various treatment groups were as follows:

	SF	Lipp	PWP	i.t.a.- Merr
High IQ	112.40	114.07	108.87	112.66
Average IQ	99.67	98.93	98.40	97.07
Low IQ	83.40	82.73	83.67	84.13

Third grade average teacher effectiveness ratings were also very similar: 15.67 for Scott, Foresman, 15.40 for Lippincott, 15.18 for Phonics and Word Power, and 14.40 for i.t.a.-Merrill.

The grade equivalent means on the paragraph meaning subtest of the Stanford Achievement Test during the three years of the original study are presented in the following tables. Whenever it was necessary, the scores were adjusted statistically for factors such as intelligence and teacher effectiveness ratings, and original comparisons were based upon raw scores. Grade equivalent scores are reported as a convenience to the reader.

Table 1
Paragraph Meaning by Treatments

	SF	PWP	Lipp	i.t.a.- Merr
Grade 1—				
January 1965	1.4	1.6	1.6	1.6
Grade 1—				
April 1965	1.7	1.8	1.8	1.8
Grade 2—				
January 1966	2.6	2.5	2.9	2.8
Grade 2—				
May 1966	2.9	3.2	3.1	3.1
Grade 3—				
January 1967	3.4	3.7	3.8	3.8
Grade 3—				
June 1967	4.3	4.4	4.9	4.6

For Table 1, significant differences occurred as follows: 1) in January of Grade 2 when Lippincott was compared to Phonics and Word Power, and 2) in June of Grade 3 when Lippincott was compared with Phonics and Word Power and also with Scott, Foresman.

The paragraph meaning grade equivalent means on the Stanford Achievement Test for the high, average, and low IQ levels are shown in Table 2.

Table 2
Paragraph Meaning by Treatments
(High IQ Level)

	SF	PWP	Lipp	i.t.a.- Merr
Grade 1—				
April 1965	2.0	1.9	2.4	2.4
Grade 2—				
January 1966	2.9	2.9	3.4	3.3
Grade 2—				
May 1966	3.4	3.6	3.8	3.9
Grade 3—				
January 1967	3.8	3.9	4.3	4.0
Grade 3—				
June 1967	4.8	4.7	6.0	4.9

For Table 2, the significant differences were 1) in April of Grade 1 and in January of Grade 2, i.t.a.-Merrill and Lippincott compared to Scott, Foresman and Phonics and Word Power; 2) in May of Grade 2, i.t.a.-Merrill and Lippincott compared to Scott, Foresman; and 3) in June of Grade 3, Lippincott versus Phonics and Word Power.

Table 3
Paragraph Meaning by Treatments
(Average IQ Level)

	SF	PWP	Lipp	i.t.a.- Merr
Grade 1—				
April 1965	1.8	1.7	1.9	1.9
Grade 2—				
January 1966	2.7	2.5	2.9	2.8
Grade 2—				
May 1966	3.0	3.1	3.1	3.1
Grade 3—				
January 1967	3.5	3.7	4.0	4.0
Grade 3—				
June 1967	4.7	4.6	4.9	4.8

For Table 3, the significant differences were 1) in April of Grade 1, Lippincott and i.t.a.-Merrill compared to Phonics and Word Power, and 2) in January of Grade 2, Lippincott versus Phonics and Word Power.

Table 4
Paragraph Meaning by Treatments
(Low IQ Level)

	SF	PWP	Lipp	i.t.a.- Merr
Grade 1—				
April 1965	1.6	1.6	1.6	1.6
Grade 2—				
January 1966	2.4	2.1	2.4	2.1
Grade 2—				
May 1966	2.9	2.6	2.6	2.6
Grade 3—				
January 1967	3.0	3.3	3.3	3.3
Grade 3—				
June 1967	3.7	3.9	4.2	3.9

Table 4 differences were not significant.

The results attained on the Gates Word Pronunciation Test significantly favored Lippincott and i.t.a.-Merrill over Scott, Foresman and Phonics and Word Power at the end of first and second grades, but there were no significant differences on this variable at the end of Grade 3.

On reading accuracy, as measured by the Gilmore Oral Reading Test, there was only one significant difference found at the end of Grade 1. This involved children in the high IQ third where Lippincott and i.t.a.-Merrill were ahead of both Scott, Foresman and Phonics and Word Power. In

May of Grade 2 for the average IQ third, i.t.a.-Merrill was significantly ahead of Scott, Foresman. By the end of Grade 3, the following significant differences were found: 1) for the entire subsample, i.t.a.-Merrill over Scott, Foresman, and 2) for the high IQ third, Lippincott and i.t.a.-Merrill were ahead of Scott, Foresman.

Reading comprehension results, as measured by the Gilmore test produced only one significant difference at the end of first grade and this involved children in the average IQ third where Scott, Foresman led Lippincott. There were no significant differences in May of Grade 2, but at the end of third grade, the following differences proved to be significant: 1) for the total subsample, i.t.a.-Merrill was favored over Lippincott and Scott, Foresman; 2) for the high IQ third, Lippincott and i.t.a.-Merrill were ahead of Scott, Foresman and Phonics and Word Power; and 3) for the low IQ third, i.t.a.-Merrill led Lippincott.

The only significant differences in rate of reading on the Gilmore test occurred at the end of Grade 1 as follows: 1) for the entire subsample, i.t.a.-Merrill was higher than Lippincott and Phonics and Word Power; 2) for the high IQ third, i.t.a. led Phonics and Word Power; and 3) for the average IQ third, i.t.a.-Merrill and Scott, Foresman were ahead of Lippincott.

At the end of Grade 1, the Phonics and Word Power group received significantly higher ratings than each of the other three treatment groups on the San Diego County Inventory of Reading Attitude, while in April of Grade 2, Scott, Foresman was rated significantly lower than the others. Third year results indicated no significant differences among the groups in reading attitude as measured by the San Diego test.

When attitude toward reading was measured by comparing the number of

books read independently in a typical month by each treatment group, the following significant differences were discovered: 1) in Grade 1, Scott, Foresman led each of the other three treatment groups and Lippincott read more than either Phonics and Word Power or i.t.a.-Merrill; 2) in Grade 2, i.t.a.-Merrill was behind each of the other treatment groups; and 3) in Grade 3, Lippincott and Scott, Foresman read more than either of the other two treatment groups.

Discussion and conclusions

Two instruments of evaluation were used in this study to investigate differences in the reading comprehension of the four treatment groups: 1) the Stanford Achievement Test and 2) the Gilmore Oral Reading Test. A close analysis of the results reveals some interesting contrasts. For example, when the comprehension of the entire population of the study was compared by treatment groups on the basis of Stanford results, the Lippincott group significantly led Phonics and Word Power at the end of Grades 2 and 3 and was also ahead of the Scott, Foresman group at the completion of Third grade. Comprehension results based upon the Gilmore test for the entire subsample, however, indicated that the only significant difference which existed occurred at the end of Grade 3 when the i.t.a.-Merrill group significantly led both Lippincott and Scott, Foresman. Performance on these particular tests of comprehension probably require different complexes of skills, but these results indicate that an i.t.a.-Lippincott program would be worthy of attention and future study.

A closer analysis of the significant mean differences on the comprehension tests by treatments and IQ thirds reveals some other interesting relationships. There were many more significant differences attained through the

years on the Stanford test than there were on the Gilmore test. Comprehension differences on the Stanford test generally favored both i.t.a.-Merrill and Lippincott during the first two years of the study (especially for the high IQ third), but only one significant comprehension difference was found on the Gilmore test during first and second grades (at the end of Grade 1, for the average IQ third, Scott, Foresman was significantly ahead of Lippincott).

Greater agreement seems to exist among the comprehension results of both tests of the end of Grade 3, where for the high IQ third on both tests, Lippincott scored significantly higher than Phonics and Word Power, and on the Gilmore test, Lippincott also led Scott, Foresman. Gilmore test results indicated that i.t.a.-Merrill also significantly led Phonics and Word Power and Scott, Foresman. For the average IQ third, there were no significant differences on either test at the end of Grade 3. For the low IQ third at the end of the third grade, the Stanford test revealed no significant differences, but Gilmore test results placed i.t.a.-Merrill significantly ahead of Lippincott.

In attempting to determine the effects of each instructional approach upon the ability to read words orally, the results attained on two tests have been reported: the Gates Word Pronunciation Test measures the ability to read lists of isolated words, and the Gilmore Oral Reading Test provides a measure of accuracy of orally reading words in contextual settings.

Lippincott and i.t.a.-Merrill achieved significantly greater word recognition scores on the Gates than Scott, Foresman or Phonics and Word Power in Grades 1 and 2, but by the end of Grade 3, there were no significant differences among the groups for this variable. In contrast, the Gilmore test revealed no significant differences until the end of

Grade 3 when i.t.a.-Merrill significantly led Scott, Foresman. Since the overall comprehension results on the Gilmore test were not significantly different until the end of Grade 3, reading programs with a heavy decoding emphasis apparently gave children greater power in recognizing isolated words in lists, but this advantage may not be readily transferred in Grades 1 and 2 to deriving understanding when reading words in context in oral reading situations.

A comparison of the reading accuracy on the Gilmore test by treatment groups and IQ thirds revealed that for the high IQ third, Lippincott and i.t.a.-Merrill were generally favored over the other treatment groups, while for the average IQ third, the only significant difference favored i.t.a.-Merrill over Scott, Foresman at the end of Grade 2, and there were no significant differences for the low IQ third.

The only significant differences which were found in the rate of oral reading as measured by the Gilmore test occurred at the end of Grade 1 and generally favored the i.t.a.-Merrill group.

In Grade 1, the Phonics and Word Power group scored highest on the San Diego County Inventory of Reading Attitude, but read comparatively few books independently, while Scott, Foresman children read significantly more books than the others. Grade 2 results on the reading attitude inventory placed Scott, Foresman significantly behind the other groups, but by the end of Grade 3, there were no significant differences among the groups. In all three grades, i.t.a.-Merrill pupils lagged significantly behind on the number of books read other than regular textbooks.

Although not reported elsewhere in this paper, it is important to note that during 1964-1965, twelve percent of the Lippincott pupils were retained in Grade 1 compared to three percent of

the i.t.a. pupils, six percent of the Scott, Foresman pupils, and six percent of the Phonics and Word Power pupils. In the second year of the study, 1965-1966, there were almost eight percent of the Lippincott children who were retained in second grade compared to almost five percent i.t.a.-Merrill pupils, almost two percent Scott, Foresman pupils, and almost five percent Phonics and Word Power pupils.

Implications

This study indicated that both methods and materials can make a difference in teaching reading. In general, the Lippincott and i.t.a.-Merrill groups seemed to make the best progress as measured by the evaluation instruments which were used in this study. However, the results do not suggest that any of the approaches which were investigated are consistently better than others.

Each of the four approaches to beginning reading instruction included in this study were used under rather ideal conditions. The in-service education provided to the teachers was generally excellent. Teachers received more supervision than is normally available. All of the most recent materials offered by the involved companies were provided. Therefore, it cannot be assumed that any one of the approaches, without the conditions of this study, would produce the same results.

Finally, while silent and oral reading were evaluated in this study and various relationships were determined, other relationships among language, thinking, and beginning reading instruction were not investigated. Reading is one aspect of the total language process, and is therefore closely related to other language abilities, both affecting and being affected by them. Through the use of language, thinking is facilitated and ideas are communicated through abstract symbols.

Language could not exist without thought, and thinking would be severely limited without language. This inseparable unification of language and thought processes suggests the desirability of future investigations of beginning reading instruction to include the refinement of existing evaluative techniques and the development of new measuring devices which could be used to assess important relationships among other language abilities, thinking, and various approaches to beginning reading instruction.

A Longitudinal Study of Four Programs of Reading Instruction —Extended into Third Grade

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THE PRIMARY OBJECTIVE of this longitudinal investigation was to provide increased insight into the relationship between unique characteristics of reading programs and the reading achievement of primary school children.* Specifically, the third year of the investigation was conducted to determine the effect on decoding and comprehension skills of four reading programs varying in a) the degree of regularity of grapheme-phoneme correspondences programed into the vocabulary presented, and b) the emphasis on language structure as related to meaning.

*Because of limited discussion space no summary of related and background research is provided in this writing. The interested reader can find the rationale for the investigation in the combined Cooperative Research Project Report No. 3099 and 78085. A brief version is presented in the May, 1967 issue of *The Reading Teacher*. The present research was supported by the U. S. Office of Education, Project Number 78085.

The secondary objective of the study was to examine the relationship between the subjects' morphological and syntactical language development in grade one and their reading comprehension achievement in grade three.

Hypotheses

To implement the above objectives the following experimental hypotheses were developed and tested for the third year of the investigation:

1. Third grade reading programs possessing a high degree of consistency in grapheme-phoneme correspondences in the vocabulary introduced (Program P, Program P+) produce significantly higher a) word meaning, b) word study skills, c) regular word identification, and d) irregular word identification achievement scores than the reading programs making little provision for consistent correspondences (Program B, Program B+).

2. Third grade reading programs placing special emphasis on language structure as related to meaning (Program B+, Program P+) produce significantly higher a) paragraph meaning comprehension achievement and b) sentence meaning comprehension achievement scores than reading programs placing no special emphasis on language structure as related to meaning (Program B, Program P).

3. Paragraph and sentence meaning comprehension of third grade subjects at the end of grade three are a function of the control which the subjects exhibit over designated aspects of a) their morphological language system and b) their syntactical language system at the beginning of grade one.

In addition to the three major hypotheses of the study, four exploratory questions were developed to determine the relationship between the independent background variables of a) mental age, b) socioeconomic status, c) sex, d) chronological age and independent decoding and compre-

hension variables. In each case this relationship was examined relative to the first two major hypotheses of the study.

Description of programs

The two published programs used for the first and second years of the study were also used for the third year investigation. Development of the two supplementary reading programs was likewise continued into the third year. These particular programs were chosen and developed to provide the instructional characteristics deemed necessary for testing the experimental hypotheses.

Program B consisted of a basal reading series (12) with the following characteristics: a) the grapheme-phoneme regularities are not controlled in the vocabulary presented; b) the emphasis on phonic training in establishing grapheme-phoneme correspondences is initiated at the primer level; c) the early stages of phonic training deal with initial consonant correspondences; d) second grade phonic training encompasses initial consonants, final consonants, consonant blends and digraphs; e) third grade phonic instruction reinforces many of the skills previously taught, introduces specific initial and final consonant blends (e.g., initial *-scr. squ*; final *-tch*), presents specific variations in vowels represented by different graphemes, develops generalizations involving vowel-graphemes in context with the consonant graphemes *r*, *l*, and *w*, and considers the concept of syllable; f) there is no specific emphasis on language structure as related to meaning; and g) the program includes teacher's manual, basal reader, and workbook materials.

Program P consisted of a basal reader series (4) with the following characteristics: a) the grapheme-phoneme regularities are controlled and programed in the reading materials presented; b) emphasis on phonic

training in establishing grapheme-phoneme correspondences is initiated in the prereading materials; c) initial stages of phonic training deal with the short *a*, the *schwa*, and four initial consonant sounds; d) second grade phonic training encompasses reinforcement of initial consonant, final consonants, consonant digraphs, and short vowels introduced in the first grade program, with vowel digraphs and diphthongs receiving most introductory emphasis; e) third grade phonic instruction reinforces many of the skills taught previously, introduces initial, medial, and final consonant digraphs (e.g., initial *-sc*; medial *-ph*; final *-gh*), presents a wide variety of variations in vowels represented by different graphemes, and develops generalizations related to suffixes; f) there is no specific emphasis on language structure as related to meaning; and g) the program includes the teacher's manual and basal reader materials in programed format.

Program B+ was developed by the senior investigator and was designed to emphasize language structure as related to meaning and to supplement Program B (10). Characteristics of the program include the following: a) all elements in Program B are common to this program, b) the vocabulary introduced and developed in Program B is used in the materials and exercises in the supplementary aspect (+) of this program, c) emphasis in the initial stage of this program is placed on intonation patterns as related to meaning and written punctuation, and d) basic patterns of language structure are developed and the relationship of words and word groups to meaning contrasts in each pattern is stressed. Examples of contrasting meaning changes include:

1. Word substitution (e.g., *Bill sees the ball. Linda sees the ball. Linda sees the kitten.*)

2. Pattern expansion and elaboration (e.g.,

Sam ran. Sam ran fast.) Sam ran fast after the ball.

3. Pattern inversion (e.g., *Bill hit the ball. The ball hit Bill.*)

4. Pattern transformation (e.g., *Sam is in the kitchen. Is Sam in the kitchen?*)

Other meaning change concepts emphasized in the second and third years of the study were: a) subordinative expansion of clauses as related to meaning; b) expansion of verbal groups as related to meaning; c) the importance of noun, verb, phrase, clause, and question markers in relation to meaning change; and d) the significance of key sentence structures in paragraphs as related to meaning. Words for pattern construction and manipulation were grouped on the basis of form class and printed on color coded one and one-fourth inch cubes to provide flexibility in pattern construction in developing the desired contrasting meaning changes.

Detailed teacher plans were designed for each lesson, and lesson plans culminated with special emphasis on the development of problem-solving skills. This aspect of the program took the form of a series of story problems presented to the children in written form. Initially the teacher provided guidance in directing the children's attention to various strategic clues leading to a variety of alternatives in solving the problem. The children then selected their own pertinent clues and examined alternatives which led to the solution of various problems. Many of the early concepts encompassing structural elements which relate to meaning were reviewed and reinforced in the plans.

Program P+, also developed by the senior investigator, was designed to supplement Program P (10) and to emphasize language structure as related to meaning. Characteristics of this program include the following: a) all elements in Program P are common to this program; b) the vocabulary introduced in Program P is used in the

materials and exercises in the supplementary aspects (+) of this program; and c) the concepts, exercises, and materials were developed, presented, and utilized in a fashion identical with the supplementary aspect of the B+ program.

Procedural controls

Under the rotating grade plan used widely in the Oakland Unified School District, Oakland, California, the twenty-four randomly assigned teachers from the first grade study had followed their classes into the second grade. Thus the random assignment of teachers to treatment groups effected at grade one in September, 1964, had automatically provided for randomization of teachers to treatment groups at the second grade level. This procedure differed for the third year of the study, however, in that the second grade pupils progressed into the third grade classroom taught by the teacher who would normally receive that class. Consequently, all third grade teachers were new to the children and the study. By the third year of the study, one class had been lost from each of the four treatment groups. Three of these classes (B, P, B+) had been lost from the lowest income area of the district and one (P+) from the middle income area.

All reading programs were used for the first time by a great majority of the third grade teachers. A one and one-half day workshop was held at the beginning of the third grade school year to familiarize the teachers with the basic instructional rationale and methodology, and to provide an overview of the research project design. Five teacher workshops were held during the third year and teacher visitation was carefully equated for the various treatments. Every effort was made to insure equivalent teacher interest and enthusiasm in controlling for differences which might have been

produced by the "Hawthorne effect."

Variation in time devoted to reading instruction was controlled for each treatment group. Throughout each week the first group of subjects in Program B and in Program P devoted sixty minutes in the morning to reading instruction and the second group spent sixty minutes in the afternoon in the reading period, using the split-group plan* common to the school district. The first group of subjects in Program B+ and Program P+ also followed the split-group plan. On Monday, Wednesday, and Friday the latter two treatments devoted forty-five minutes to basal reading in the split periods and fifteen minutes to the supplementary program emphasizing language structure as related to meaning. On Tuesday and Thursday the entire sixty minutes was devoted to the basal reading aspect of the two programs. Thus, fifteen percent of the reading instruction time in the B+ and P+ programs was devoted to the structural supplements.

Criterion tests were administered in May of 1967 to evaluate third year reading achievement relative to the primary objective of the study. These tests included the following: Word Meaning, Word Study Skills, and Paragraph Meaning subtests of the Stanford Achievement Test; the Primary Test of Syntax, designed by the investigator to measure sentence meaning comprehension; the Phonetically Regular Words Oral Reading Test, designed by the University of Minnesota Coordinating Research Center to measure children's ability to decode words containing consistent correspondences; and the Gates Word Pronunciation

*Under the split group reading plan the first group of pupils in a given class arrives at 8:45 a.m., and reading is taught until 9:45. At 9:45 the second group of pupils joins the class. At 2:00 p.m. the pupils who came to school at 8:45 leave the class, and the pupils who entered school at 9:45 have reading class from 2:00 until 3:00.

Test, administered to measure children's ability to decode words containing inconsistent correspondences. The latter two tests were administered individually to a group of children randomly selected from each treatment group.

Relative to the secondary objective of the study, modified forms of Berko's Test of Morphology (3), and the Fraser, Bellugi and Brown Test of Syntax (6) had been administered to the above-mentioned randomly selected group early in the first year of the study. These tests represented an attempt to measure the subjects' control over specific aspects of their morphological and syntactical language systems.

Results of the study

Analysis of covariance followed by F tests between individual means was used to test the first two hypotheses encompassing the primary objective of the study, and also in the analysis of the exploratory questions. The covariate for each criterion variable consisted of the first grade readiness variable which was found to correlate most highly with the dependent variable under consideration. The covariate in each case was the Murphy-Durrell Diagnostic Reading Readiness Test. The third hypothesis, which comprised the secondary objective of the study, was tested using the Pearson Product Moment Correlation.

Although the following presentation of findings is based on year three of the longitudinal study, on occasion first and second year results are mentioned in order to establish similar or contrasting achievement differences over the three-year period. Findings pertinent to the exploratory questions for the third year are reported immediately after results for each related major hypothesis. These findings are included to facilitate meaningful interpretation of the study in its entirety

It was found, with respect to the first hypothesis, that the third grade reading program making provision for a high degree of consistency in grapheme-phoneme correspondences and placing special emphasis on language structure as related to meaning (P+) produced significantly higher word study skills and regular word identification achievement than did the reading program making little provision for consistent correspondences and emphasizing language structure as related to meaning (B+). Although the differences on the word meaning and irregular word identification achievement measures were in the predicted direction, their associated F values failed to reach the critical significance level.

The mean value contrasts for programs B and P (second half of hypothesis one) produced no evidence of significant differences on any one of the four decoding skill measures. In only one instance was a nonsignificant result in the predicted direction. In this case, the mean score on the regular word identification measure favored Program P. The nonsignificant differences on the word study skills and irregular word identification measures were in reverse of the predicted direction, favoring Program B over Program P. These results are reported in Table 1.*

The data obtained in the analysis of the exploratory questions allowed qualification of results for the major hypotheses. The year three results pertaining to hypothesis one (decoding skills) were as follows:

1. The reading program possessing controlled consistency in correspondences and emphasizing language structure as related to meaning (P+) was of greater benefit than

*Because of the different test forms used for each of the three years of the study, it is essential for proper interpretation of the Table 1 that comparisons be made only within a given year. Nonetheless, relative differences between means across the three years can be considered through inspection.

TABLE 1

Adjusted Means for Decoding-Skill Variables -- Years One, Two, and Three

Dependent Variables	Group B	Group P	F Value	Group B+	Group P+	F Value	Covariate
Year 1, W.R.	17.60 (N=132)	20.67** (N=134)	23.62	16.51 (N=157)	19.70** (N=124)	25.60	M.D.
Year 2, W.M.	18.63 (N=81)	18.16 (N=81)	.22	15.80 (N=81)	19.52** (N=81)	13.57	M.D.
Year 3, W.M.	24.89 (N=59)	24.79 (N=59)	.09	23.81 (N=59)	25.53 (N=59)	2.74	M.D.
Year 1, W.S.S.	32.48 (N=133)	33.42 (N=134)	.90	30.93 (N=155)	34.98** (N=123)	16.40	M.D.
Year 2, W.S.S.	39.78** (N=81)	31.96 (N=81)	15.29	32.06 (N=81)	35.54* (N=81)	3.98	M.D.
Year 3, W.S.S.	42.46 (N=59)	40.39 (N=59)	.93	38.36 (N=59)	43.38* (N=59)	5.46	M.D.
Year 1, R.W.I.	5.44 (N=44)	9.09** (N=41)	9.99	3.08 (N=42)	10.02** (N=40)	32.83	Met.
Year 2, R.W.I.	26.19 (N=21)	22.12 (N=21)	1.09	13.98 (N=21)	24.32* (N=21)	7.01	M.D.
Year 3, R.W.I.	32.70 (N=23)	33.99 (N=23)	.19	28.26 (N=23)	34.35* (N=23)	4.13	M.D.
Year 1, I.W.I.	10.80 (N=44)	11.83 (N=41)	.72	9.93 (N=39)	12.79* (N=39)	5.06	Met.
Year 2, I.W.I.	24.38 (N=21)	23.91 (N=21)	.04	18.96 (N=21)	24.22* (N=21)	4.74	M.D.
Year 3, I.W.I.	30.59 (N=23)	29.33 (N=23)	.45	27.91 (N=23)	30.26 (N=23)	1.55	M.D.

*Contrast significant at .05 level

**Contrast significant at .01 level

Key: W.R. = Word Reading
W.M. = Word Meaning
W.S.S. = Word Study Skills
R.W.I. = Regular Word Identification
I.W.I. = Irregular Word Identification
Met. = Metropolitan Readiness Test
M.D. = Murphy-Durrell Diagnostic Reading Readiness Test

the program which emphasized only language structure (B+), to children in the following classifications for the respective variables:

- low and mid mental age on the word study skills variable.
- high mental age and low socioeconomic status on the regular word identification variable.
- low socioeconomic status on the irregular word identification variable.

2. The treatment which did not control correspondences (B) was of greater benefit than the program controlling correspondences (P), to children, classified as low socioeconomic status, on the word meaning variable.

3. The program controlling correspondences (P) was of greater benefit than the program which did not control correspondences (B), to children, classified as low

chronological age, on the regular word identification variable.

In testing the second hypothesis (comprehension achievement), the mean scores for subjects in Program B were contrasted with the means for subjects in Program B+, and Program P means were contrasted with Program P+ means. These year three results are presented in Table 2 along with those for years one and two.

The findings revealed no statistically significant differences on either the paragraph meaning comprehension or

TABLE 2

Adjusted Means for Comprehension Skill Variables -- Years One, Two, and Three

Dependent Variables	Group B-	Group B+	F Value	Group P	Group P+	F Value	Covariate
Year 1, P.M.	17.5** (N=132)	13.78 (N=156)	15.92	15.66 (N=134)	17.56* (N=123)	4.16	M.D.
Year 2, P.M.	31.54** (N=81)	26.71 (N=81)	7.93	26.93 (N=81)	31.63** (N=81)	7.51	M.D.
Year 3, P.M.	40.43 (N=59)	39.24 (N=59)	.42	40.71 (N=59)	40.78 (N=59)	.01	M.D.
Year 1, S.M.	22.24 (N=130)	23.10 (N=155)	.35	23.96 (N=132)	29.42** (N=116)	11.90	Met.
Year 2, S.M.	44.65 (N=81)	42.98 (N=81)	.62	40.92 (N=81)	44.06 (N=81)	2.19	M.D.
Year 3, S.M.	53.13 (N=59)	51.51 (N=59)	.78	50.78 (N=59)	52.75 (N=59)	1.15	M.D.

*Contrast-significant at .05 level

**Contrast significant at .01 level

Key: P.M. = Paragraph Meaning
 S.M. = Sentence Meaning
 M.D. = Murphy-Durrell Diagnostic Reading Readiness Test
 Met. = Metropolitan Readiness Test

sentence meaning comprehension variables. An inspection of the data, however, over the three year period suggested a trend in the results which is similar for both variables. These longitudinal data showed that the P+ program produced consistently higher scores than the P program that the B program, in reverse of prediction, yielded higher mean scores than the B+ program. This was found to be the case in every instance except on the sentence meaning comprehension variable at year one. Findings for the exploratory questions relative to the comprehension achievement hypothesis revealed no statistically significant differences at year three.

Results pertinent to the third hypothesis of the study (oral language and comprehension development) indicated that the correlations between the year one morphology test scores and the year three paragraph meaning comprehension and sentence meaning comprehension scores were .36 and .38

respectively. Correlation coefficients between the year one syntax measure and the year three paragraph and sentence meaning comprehension were .56 and .50 respectively. In every case these coefficients were significant at or above the .05 level. Thus, in keeping with the first and second year results, it was concluded that the paragraph meaning achievement and sentence meaning achievement of third grade subjects at the end of grade three were a function of the control which the subjects exhibit over designated aspects of a) their morphological language system, and b) their syntactical language system, at the beginning of grade one. Consequently, the third hypothesis of the study was accepted.

Conclusions, discussion and research implications

Although the findings reported above pertain primarily to the third year of the investigation, the following conclusions will integrate third year

results with those from the previous two years. As in any investigation of this sort, such conclusions must be considered within the limitations of the research design.

1. The treatment which controlled regularity of grapheme-phoneme correspondences and emphasized language structure (P+) produced consistently higher decoding skills throughout the three year study than did the treatment which did not control correspondences but emphasized language structure (B+). These findings were not only identified with the main effects but also were noted with some regularity for various mental age and socioeconomic status categories.

2. The treatment which did not control for consistency of correspondences (B) produced consistently higher word study skills achievement at year two than did the treatment which carefully controlled the correspondences (P). This difference was also apparent for various levels of mental age and socioeconomic status.

These findings suggest that at year three, as at year two, the language structure supplement (+) interacted more favorably with Program P in the P+ program than with Program B in the B+ program on decoding skills achievement. It is suggested that this different interaction may have resulted from reinforcement variation due to the different vocabulary used in the P+ and B+ supplements. This possible explanation deserves consideration in future research.

It is also evident from the findings that the precise control of the consistency of grapheme-phoneme correspondences (P) in the vocabulary used did not produce the expected superiority in decoding skills when contrasted with the program placing little emphasis on correspondence control (B) for the second and third years of the study. It should be stressed, however, that the second and third year findings

relative to the decoding variables are to a large extent in reverse of the first year findings (10), which favored the treatment emphasizing careful control over the grapheme-phoneme correspondences (P). Hence, the early decoding advantage offered in the program emphasizing consistent control over correspondences decreased to a great extent by the end of grade two, at which time the program not controlling consistency of correspondences held a distinct advantage. This latter result may be partially explained by the introduction of vowel correspondences, which occurred later in grade two for the treatment emphasizing little correspondence control. Thus, the significant factor may be the introduction of correspondences rather than the careful control over consistent relationships presented in the vocabulary. It is also possible that certain children, such as the high mental age and high socioeconomic status subjects, are able to arrive at their own decoding generalizations through extensive reading at home and in school, and as a result gain little advantage from the careful control of grapheme-phoneme correspondences. These various hypotheses deserve consideration in future research. Additionally, an intensive research effort is needed to explore the psychological reality of linguistic units (e.g., phonemes, morphophonemes, morphemes, and their graphic equivalents) used in the decoding phase of reading programs. The relationship between children's perceptual and conceptual development, the various linguistic units and reading achievement should be examined in future research.

3. During the first two years of the study the treatment which controlled correspondences and emphasized language structure as related to meaning (P+) yielded consistently higher comprehension skills achievement than did the treatment which emphasized only control over correspondences (P)

These findings suggest that a balanced emphasis should be developed between decoding and comprehension skills in early reading instruction. No significant comprehension differences were found at year three.

4. Although no significant differences were observed at year three, persistent differences over the first two years of the study indicated that the treatment which did not place special emphasis on grapheme-phoneme correspondences, nor use the language structure supplement (B), produced superior comprehension skills achievement over the parallel treatment using the structural supplement (B+). An inspection of Table I reveals that subjects in the former treatment possessed decoding skills somewhat superior to those in the latter treatment, and this difference may partially explain the observed comprehension variation. Additionally, a second variable which may have inflated the mean differences was the time differential which required subjects in treatment B+ to spend fifteen minutes three times each week on the language structure supplement (+) while treatment B subjects continued to work through the regular basal program. Future research, therefore, should examine these treatments under conditions utilizing equivalent instruction time for Program B in treatments B and B+, and additional provision should be made for the fifteen minutes used three times each week for instructional supplement (+). This recommendation is made in light of the comprehension differences which consistently favored treatment P+ over treatment P.

5. The significant relationship observed between the subjects' control over morphological and syntactical elements in oral language and their sentence and paragraph meaning comprehension suggest, the need to weigh carefully significant interrelationships in language skills development.

Concern should be given to the possible use of oral language variables in reading readiness instruments. Classroom teachers should also possess an awareness of the potentially important role which these dimensions of oral language play in reading achievement. This concern receives support from the research of Graves (7) and Hartson (8), which came directly from data collected in this investigation.

6. The possible transfer value of decoding and reading comprehension skills to encoding, written expression, and oral communication skills also deserves further study. This was not the primary concern of the immediate investigation, but supportive evidence may be found in the research of Henry (9), Ahern (1), Baele (2), and Crawford (5). These studies also arose directly from data collected in the present investigation.

7. During the planning and conducting of this study, there was constant awareness of the need for instruments which would more precisely measure specific dimensions of reading achievement. For the present study it was necessary to design decoding, comprehension, and oral language measures. It is believed that the standardized instruments which were available are of limited value because of their gross nature. This area should be given careful study, and a variety of instruments should be constructed to measure various specific facets of decoding, comprehension, and attitudinal factors in reading.

Concluding remarks

The research design, the data collected, and the resulting conclusions have only partially provided for the primary and secondary objectives of this investigation. As with the great majority of research projects, this study raises many questions which will require future consideration within controlled laboratory settings and in

field research settings. Its value lies mainly in utilizing an experimental approach to provide significant information about program characteristics, pupil characteristics, and reading achievement in realistic classroom settings.

There is a continued need to conduct carefully controlled longitudinal research studies of this nature if recently developed programs possessing characteristically new rationales and different instructional approaches are to be evaluated. This approach, combined with laboratory experimentation, is essential if reading researchers and classroom teachers are to obtain further understanding of the relationship between reading program characteristics, pupil attributes, and reading achievement.

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Effects of Individual Programmed Instruction on Initial Reading Skills and Language Behavior in Early Childhood

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WITHIN THE PAST FEW YEARS educators have directed increasing attention toward the development of "preschool" training programs. As a result, numerous attempts have been made to determine the deficits that accrue to children who seem to lack early experiences leading to school success and the value of varied approaches to training the young. For example,

Deutsch (4) established a relationship between early stimulation and upper elementary school performance.

Durkin (5), in her research, asserted advantages for earlier readers, and Bereiter and Englemann (1) are now working on that premise. After synthesizing voluminous research, Chall (2) pointed to results in later achievement in cases where children had learned the alphabet before reading. The desirability of learning the letters prior to actual reading has also been stressed by Durrell (6).

Moore (8), with Kobler, developed a "computerized typewriter" on which children of three and four years of age learned to read, write, and compose stories as well as to type. The machine can be programed in a variety of ways with any desired sequence of letters or words—to "talk," play games, read aloud, show pictures, and take dictation. Known commercially as the Edison Responsive Environment (ERE), the equipment is being used in several settings throughout the country. Since Moore looks upon each learner as unique and individual, programing for the machines varies. The pilot study reported here is an attempt to gauge the effectiveness of the use of the ERE (model 3) in conjunction with a nonautomated typewriter in teaching three and four year olds over a five month period. In addition, efforts were made to determine the effects of the treatment upon language facility.

Procedures

Sample. The sample was comprised of 27 children, 15 of whom paid tuition and 12 who did not. The latter group were children of primarily low socio-economic status (i.e. neighborhood children participating in a Get Set program). The mean age for both groups was 49 months. Mean IQ score, as measured by the Stanford Binet Intelligence Scale (1960 revision), was 118

for the tuition group and 100 for the nontuition group.

Treatment. A daily 15 minute session was provided in which the adult-child ratio was 1:1. All children were offered the treatment daily with daily option of refusing. A combination of both automated and nonautomated equipment was used. The choice of instrument for a given day was dependent upon the discretion of the teacher, however, all of the subjects received approximately 80 percent of the total instructional time on the automated machine. The nonautomated booth contained a typewriter, as well as audio-visual equipment and Instructo (7) materials. In this setting, the assistant sat at the child's side in order to operate the equipment manually, while in the automated booth, the machine was operated from a central panel and the child was observed through a one-way mirror. A daily record was kept of time spent, stroke count, and performance. During the time of treatment the training areas for the automated machine was bare, except for the equipment. The temperature was controlled at 72 degrees.

A three-phase program was developed in which each child was to demonstrate the ability to match names of alphabet letters to their graphic symbols, demonstrate the ability to type letters from dictation, and demonstrate skill in reading words orally.

Phase 1. In the first session with the machine, the child was confronted with what appeared to be a standard electric typewriter with colored keys. The child could explore the keyboard freely. After the depression of a key, the name of the letter was pronounced and its symbol appeared. Each depression locked the keyboard until the machine voiced the letter name. The child remained in this phase until he was able to relate the names of the letters to their graphic symbols.

Phase 2. After a child had learned

the alphabet, he was to learn that letters form words. The child typed from instructions provided by the machine program or by the booth assistant. The machine locked automatically so that nothing except the letters for forming desired words could be typed.

Phase 3. In this stage, the machine was programmed so that different things (e.g., letters, words, stories) could be typed at will. The child's ability to read what he, or the machine, had typed, was taken as evidence of his sight vocabulary.

Analysis of data. Children were pretested on the following variables: 1) alphabet recognition for both upper and lower case letters, 2) ability to type words, 3) size of sight vocabulary, and 4) language facility. At the end of five months, these skills were reassessed and the results were compared to earlier testing. In the case of alphabet recognition and language facility, a comparison of pre- and post-test scores was made. Since none of the children could initially type or read, only post-test data are reported for these two variables.

The following category system was devised for classification of the data.

<i>Alphabet Recognition</i>	
<i>Level</i>	<i>Performance</i>
1	none
2	some upper case
3	all upper case
4	some upper and lower case
5	all upper and lower case

<i>Typing</i>	
<i>Level</i>	<i>Performance</i>
1	none
2	types name
3	types name and short words
4	types from dictation

<i>Sight Vocabulary</i>	
<i>Level</i>	<i>Performance</i>
1	none
2	name
3	1-9 words
4	10-25 words

was used. This instrument is a three-picture test, administered individually, designed to measure facility in the use of oral language independent of vocabulary and specific information. The correct identification of objects in the pictures is not rated. Scores are based upon elaboration of response, i.e., a one word response receives a score of 1 while a creative story is scored at 9. The highest score obtainable, then, is 27. In a previous study, reliability was .75 using three scores. Data utilized in the present study were collected from 11 children who were present on both pre- and post-testing dates. The means were compared by a t-test.

Findings

Alphabet recognition. At the time of the pretest, the median performance fell within Level 2. This would indicate that the group had the ability to recognize some, but not all, upper case letters, and no lower case letters. At the time of the post-test, the median performance was within Level 4. Recognition of all upper case letters had by then been acquired in addition to some, but not all, lower case letters.

Typing. At the end of the five month period, the median performance for the entire group was within Level 2. This indicates that the children could type their names, but not other words.

Sight vocabulary. Data on this variable revealed that the median level after the experimental period fell within Level 2. At this stage, children could recognize their names but not other words.

No meaningful differences were found between the performance of tuition and nontuition children on any of the variables.

Language facility. With regard to this variable, the differences between the means of pre- and post-tests were found to be nonsignificant ($t = 1.10$).

To gauge language facility, the Daley Language Facility Test (3)

Discussion

The findings of this study corroborate those of Moore (8) in that children did acquire primary reading skills through use of the Edison Responsive Environment. The nontuition children and the tuition children showed similar learning rates. This finding was unexpected in that performance on IQ tests showed a 17 point discrepancy in favor of the tuition group. Since much current literature points to increasing intellectual deficits for educationally deprived children as they progress through the school years, the early childhood years would seem crucial ones for such training. Pines (9) brings much evidence to bear on the importance of the years from one to six as years of prime receptivity for academic learning.

Until recently, the transmission of specific skills related to our culture was contingent upon an instructor (parent or teacher) and/or materials. With the advent of the teaching machine, the learner can now be independent of the instructor. He becomes actively involved, gets immediate feedback about his actions and progresses at his own pace. This process is carried on in a neutral setting, wherein a person-to-person interaction is not essential.

While the effectiveness of teaching machines has yet to be fully determined, this means of instruction would appear to be well suited to the young child who may possess a short attention span and an affinity for manipulating the environment. Controlled research is needed to account for possibilities of Hawthorne Effect and maturation, and followup is necessary to gauge long-term gains. Effects of early instruction have shown, however, that children can and do learn in what were formerly called the "preschool" years.

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Reading Readiness as Influenced by Parent Participation in Head Start Programs

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THE ECONOMIC OPPORTUNITY ACT OF 1964 focused national attention on the development of educational programs for children in the lower socioeconomic groups. One of these preschool programs, Head Start, a community program involving parents and offering health and welfare services as well as a program of school readiness, has received increasing attention, and much interest has been directed toward the factors which may influence the program's success.

In an effort to emphasize the primacy of the home as a motivating influence in the lives of the preschool

students, Head Start provides for the direct involvement of families. The concept of a child development center as a community facility is in accordance with the Economic Opportunity Act, which states that there shall be "maximum feasible participation of the poor."

For many years, the family has been recognized as a basic factor in child development and Julius B. Richmond (6), the National Director of Head Start, stated early in the Head Start planning that provisions must be made for parents to define their areas of interest and activities and that there should be no prohibition against employment of parents in Head Start programs either on a salaried or on a volunteer basis. He strongly emphasized that parents should be involved in Head Start planning and policy making.

Many of the parents of Head Start children are functional illiterates, and school for them has been frustrating or of little significance. This unsatisfying and unhappy school experience has produced, as one outcome, a generation of children with a lack of motivation and a negative attitude toward learning (1). Thus, many Head Start children show little interest in school, and they often lack the favorable attitudes toward reading upon which much of their later academic success depends. Numerous authorities writing in the field of reading have recognized that a poor environment affects reading readiness. Warley and Story (8), in a summary of socioeconomic status as it affects language and reading facility in beginning first graders, report that social environment hampers or enhances language development. Children who come from homes where there is little opportunity for interaction with adults are language handicapped. This is an important consideration in reading readiness training.

Contributing factors in reading readiness among disadvantaged

Jensen (3), from his work with the disadvantaged element in our society, has written that if any single component of cultural deprivation can be pointed to as the most crucial and the most pervasive in its effects, it is probably the poor development of attention span during the preschool years. This must be remedied for the development of successful reading.

One means of developing attention span is to observe and to listen while an adult reads aloud a story. This activity develops visual and auditory stimulation as well as bringing about parent-child interaction. Unfortunately it is one activity which most Head Start children do not experience. This lack is one of the chief causes of failure in reading readiness.

A favorable attitude toward reading is recognized by those at all levels in education as the prime factor in a student's success in reading. Those directly involved in reading readiness continually write that those children who enter school already reading tend to come from homes where there are books, someone who answers their questions, and someone who reads aloud to them (2). Deutsch (6) recently reported experimentation in preschool programs based on the assumption that early intervention will significantly reduce attenuating influences of the socially marginal environment. His findings reveal significant differences in auditory discrimination between lower-class and middle-class first grade children. These differences he ascribes to the fact that at kindergarten level, many lower-class children have difficulty in making use of the adult as a source of information, correction, and the reality testing involved in problem solving and other learning activities. He also says that

there are strong indications that the class differences found in perceptual abilities and general environment orientation decrease with chronological age, while the language difficulties tend to increase.

Importance of language interaction for reading readiness

Development of language behavior. Language behavior is described by Vera John (4) as developing on three major levels. These are labeling, relating, and categorizing. She believes that all young children need opportunities to categorize and integrate. Culturally-deprived parents seldom provide the feedback or tutoring needed for the development of such skills.

Culturally-deprived children are verbal in the sense that they use language in social interaction, but they are relatively nonverbal in the sense that they have little tendency to use language as an aid to thinking and problem solving. Language and verbal mediation are powerful intellectual tools without which most forms of conceptual learning are practically impossible. Evidence so far indicates that the culturally disadvantaged have not strongly acquired this verbal mediation which facilitates learning, retention, and problem solving (4).

Language occurs in interpersonal interactions. Cary (1) has stated that language acquisitions result from interpersonal transactions. Reinforcement is provided by the interest and attention which an adult displays to the child. The acquisition of language through verbal dialogues at a preschool age is the basis of a readiness to develop cognitive capacities. These capacities require verbal dialogues with those who have already acquired the language. Such capacities become an autonomous process in the development of cognitive capacities. If a child is to learn the skill of using words, he

needs the presence and active assistance of another capable person. In a middle-class home, language is an effective means of communication and cognitive exploration, but in a lower-class home, where the child in a frequently large family is surrounded by many faces and cared for by many hands, such means are generally absent. He, too, hears a word, sees an object, but his own first attempts at talking may well receive no reaction. In middle-class homes, opportunities to hear simple labels are abundant. There is also much corrective feedback, and this feedback provides opportunities to experiment with strategies of language behavior. It teaches the conditions under which people listen, and the learner discovers early how to internalize the role of speaker as well as of listener (5).

Involvement of lower-class parents in an educational program can develop language interaction, educational aspiration, and aid in fostering appreciative attitudes for the environment of the school. When a lower-class child enters school, his learning context changes, as does his psychological readiness for achievement. Thus, a program of continuity where favorable attitudes are developed between the home environment and the school can be a strong influence on children's attitude toward reading (3).

Development of the study

At the time of this study, the influence of parent participation on the reading readiness of culturally deprived preschool Head Start children had not been determined. This study was designed to measure it.

Basic assumptions of the study were that parent participation and involvement in the Head Start program would establish a favorable identification pattern which would stimulate reading readiness, and that parent involvement in an educational program

would produce positive attitudes toward school which would be transferable to their children.

The subjects involved in the study were 485 Negro children and 56 white children from the rural and urban areas of Tallahassee, Florida and the surrounding county. Leon County is located in the Northwestern panhandle region of Florida and a hundred years ago was typical of the plantation economy existing in the deep South. Today it is no longer predominately rural, but is urban, and the economy depends largely upon the state government and the two Negro and white universities located here. The range of income among the Head Start families was less than \$2,000-\$5,000. Median income of all these families was reported at \$2,500, and the greatest percentage of the fathers and mothers of these children were classified as unskilled or semiskilled according to the "1960 Census Directory of Occupational Titles."

Those involved in the administration of the Head Start program, as well as the teachers, were eager to involve parents in the program. Head Start was in its second year of existence in Leon County, but this was the first major attempt to involve parents in the program. Parents were originally invited to attend the program by special invitation by the teachers and the children. Notes were sent home and as parents came to the school to pick up their children, they were asked to come and participate in the program. In the beginning parents were hesitant, but as some parents began coming, others soon followed.

A survey of the parent participation and involvement was recorded by each teacher and carefully checked by weekly interviews as to the type and amount of the parent participation. From this survey, the children were divided into three groups characterized

by the type and amount of parent participation in the study.

Parent participation. This participation identified evident interest in the program and child, and was characterized by one or more of the following activities: 1) active direction, supervision, or participation in the classroom experience as well as the total Head Start program, 2) attendance at the school for parent-teacher conferences, 3) visits to the classroom restricted to observation and occasional interaction with the children, 4) contributions of occasional refreshments or materials to the program, and 5) attendance at one or more PTA meetings.

Highly active parent participation. This participation represented highly active involvement directly with the children in the classroom experience. Such direct involvement included 1) parental supervision of field trips or during physical examination tests; 2) reports to the class from parents employed in such community work as that of nursing, or law enforcement; 3) demonstrations of activities such as planting a garden, constructing an animal cage, sewing doll clothes, or care and feeding of animals; 4) provision of special events such as a wagon ride or visits to a parent's farm; 5) help with reading, telling stories, directing art projects; or 6) aiding the teacher in general class activities.

No parent participation. This participation evidenced no involvement or contact with children or teachers, except for initial enrollment of children in the program.

For purposes of the study, the subjects were categorized into three groups according to their parents' participation. There were two experimental groups and one which was used as a control group. Experimental Group One consisted of 354 children with a mean age of six years, six months. The parents of these children

in the Head Start program participated actively.

Experimental Group 2 consisted of 97 children with a mean age of six years and one half months. Parents of these children participated highly actively in the Head Start Program. The control group was comprised of 187 Head Start children, whose mean age was six years, six months. Their parents did not actively participate in the program.

Negro and white subjects were jointly included in the groups for three purposes. First, the white subjects represented approximately ten percent of the composition of each group; therefore each group was approximately proportional in racial composition. Second, the elimination of certain subjects on the basis of race, would change the character of the study, which was not a study of racial influences, but was limited to effects of parent participation on reading readiness. Last, the national effort at this time toward integrated school programs made research of integrated systems pertinent for future educational plans.

Measure of readiness. The Metropolitan Reading Readiness Test was administered to the Head Start students in September 1967 during the first week of school by the first grade teacher. The Metropolitan Reading Readiness Test appears to be appropriate for the type of population used in this study. H. Alan Robinson (7) investigated the reliabilities of measures related to reading success of average, disadvantaged and advantaged kindergarten children. He found that the Metropolitan Reading Readiness Test was extremely reliable for disadvantaged and average subjects, and not quite so reliable for advantaged subjects. The weakness of the test in regard to culturally-deprived subjects appeared to lie only in the complexities involved in test administration and the

length of time needed for administration.

The Metropolitan test measures factors that contribute to readiness for beginning school work. These factors are linguistic attainments and aptitudes, visual and auditory perception, muscular coordination and motor skills, number knowledge, and abilities to follow directions and be attentive in groups. The test measures readiness by six subtests: word meaning, sentences, information, matching, numbers and copying. Each test consists of pictures which pupils mark according to oral instructions.

In the study a total raw score was obtained from each of the six subtests. Comparison of the mean raw scores of the several groups was then made to determine if differences did exist. The differences were among the mean raw scores then tested for statistical significance.

Measure of intelligence. The Detroit Group Intelligence Test was administered to the subjects in groups of ten during the first week of Head Start attendance. The Detroit Group Intelligence Test (revised form) was originally designed to aid in the classification of children entering the first grade. It was the intelligence test used in Leon County with Head Start subjects administered during the first week of Head Start. The publisher of the test (Harcourt, Brace, and World) reported that the correlation between the Detroit Group Intelligence Test and the Stanford Binet test is .76, reliability of the test is .91 and the standard deviation of intelligence, 16 points. The range and the mean intelligence scores were obtained to determine if any significant differences occurring in mean reading readiness scores was attributable to intelligence.

Findings of the study

The importance of parental partici-

pation in Head Start appeared to serve as an intervening variable which influenced the reading readiness among those subjects whose parents actively participated in Head Start. Statistical techniques revealed that the mean group scores of subjects whose parents participated actively were significantly higher than the subjects whose parents did not participate. The mean group scores of the subjects whose parents participated in a highly active manner showed even high statistical significance than the subjects whose parents did not participate.

Additional findings

Additional intelligence test scores of the 414 available of 541 subjects revealed that there were no statistical differences in intelligence between the group with highly active parental participation and no parental participation. A significant difference in intelligence was found between the all-parent participation group and the no parent participation group. It is highly probable that the larger numbers in the all-parent participation group may have accounted for a significant difference occurring. Since there were no statistically significant differences in intelligence between the highly active participation group and the no participation group, however, it can be assumed that, with intelligence equal, parental participation in Head Start did serve as an influencing factor in reading readiness.

The results of a questionnaire submitted to the parents who participated revealed an additional finding of interest from the study. Almost 90 percent of those parents participating indicated that they became involved because of the teacher and child's invitation.

Conclusions

One conclusion indicated by this

study is that parental participation and involvement in Head Start influence reading readiness scores. The author believes this conclusion has major implications for those in the teaching of reading. Readiness for reading is an important factor in successful reading for all segments of the population at all grade levels. Perhaps teacher and administrative encouragement of parents to participate in the school program will extend educational aspirations for reading success among students. It is highly recommended that teachers provide many varied opportunities for parents to become involved in the school program. This study indicates that teacher encouragement is essential. Most parents are usually hesitant and reluctant to participate unless there is major effort on the part of the teachers and the administration.

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Sex Differences in Reading
Readiness—First-Grade
Achievement and Second-Grade
Achievement

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THE SUBJECT OF SEX DIFFERENCES in language acquisition and school achievement has been a popular area of study for many years. Research evidence has gradually led to the conclusion that girls mature more rapidly during infancy and early childhood in almost all phases of linguistic development and academic achievement. An instructor in an educational psychology course summarized the evidence concerning sex differences in linguistic development by stating that girls get in the first and last word—they speak at an earlier age than boys and they live longer. McCarthy in 1954 observed that among American white children girls characteristically are superior to boys in nearly all aspects of language (6). A few years later, Anastasi reported that differences favoring females were found in almost every aspect of language development and that this finding was remarkably consistent from study to study (1:472). A 1966 review of research by Maccoby (5) came up with the same conclusion. Girls are generally superior in age of first speech, development of articulation, and verbal fluency.

In recent years, however, some evidence contrary to the notion of female superiority in all aspects of language has been introduced. Templin (9) found that the boys in her sample were somewhat better than girls in word knowledge. Strickland (8), in her survey of the language of elementary school children, reported no consistent

sex differences. In a similar study, Loban (4) found that although low language ability girls had a greater repertoire of syntax than low language ability boys, the reverse was true for boys and girls rated as possessing high language ability. A 1967 report by O'Donnell, Griffin, and Norris (7) indicated that numerous differences were observed in syntactic structures and functions in the language of kindergarten and elementary school boys and girls. In speech, however, no consistent pattern was noted. In most cases, differences which did exist favored boys. In light of this recent evidence, the theme of female linguistic superiority in early school age language development is no longer unequivocal.

Sex differences in reading achievement appear to be less subject to debate. Most surveys of this problem find that girls make significantly greater progress in the beginning stages of learning to read. Maccoby reports findings from eighteen studies of sex differences in reading. Ten of the studies found significant sex differences favoring girls, seven reported no significant differences, and only one favored boys. An analysis of the studies reveals that, in general, girls are superior to boys in primary reading ability but that boys "catch up" by the intermediate grades. Anastasi, while concurring with the general conclusion of female superiority in primary reading, also concluded that girls tend to excel in most academic work, especially those school subjects which depend largely upon verbal abilities, memory, and perceptual speed and accuracy (1: 492).

This paper reports the findings of a study designed to yield additional information concerning sex differences in first grade and second grade achievement, as well as in readiness for reading. In addition, the study sought to determine whether or not sex differ-

ences in reading readiness and achievement were generalizable to pupils in a variety of school systems in different geographic areas. Data were obtained from projects participating in the Cooperative Research Program in Primary Reading Instruction. The general findings of this investigation have been reported elsewhere (2, 3). My purpose is to discuss specifically that phase of the study devoted to sex differences in reading readiness and in first grade and second grade achievement.

The sample consisted of all boys and girls from eight participating projects of the Cooperative Research Program, on whom complete data were gathered during grades one and two. The projects included 1,659 boys and 1,624 girls from school systems in the states of Pennsylvania, Michigan, New York, and New Jersey.

Sex differences in reading readiness

The following representative measures of reading readiness were used:

1. Pintner-Cunningham Primary, a group test of intelligence.
2. Murphy-Durrell Phonemes, a test of the ability to discriminate like and unlike beginning and ending sounds.
3. Murphy-Durrell Letter Names, a test of the child's ability to recognize lower case and capital letters.
4. Murphy-Durrell Learning Rate, a test of the child's ability to learn to read a small number of words.
5. Thurstone-Jeffrey Identical Forms, a test of the child's ability to select from a

group of figures a figure similar to the one used as a stimulus.

6. Metropolitan Word Meaning, an oral test of vocabulary.
7. Metropolitan Listening, a test of the child's ability to follow oral directions.

A two by eight analysis of variance model was used to test for sex differences in readiness for reading as measured by each of the seven tests. The statistical model enabled a test of sex differences and project differences in readiness, as well as a test of the consistency of obtained sex differences across the eight projects which were involved in this phase of the study.

Analysis of the data indicated highly significant differences in reading readiness among pupils in the eight projects. However, no sex by project interactions were found. Therefore, sex differences which existed in reading readiness were consistent from project to project.

The findings for each of the seven readiness measures are presented in Table 1. Significant sex differences favoring girls were found on six of the seven readiness measures. Girls were significantly superior in intelligence, auditory discrimination, letter knowledge, learning rate, visual discrimination, and ability to follow directions given orally. The magnitude of the differences varied considerably for the various measures and was quite inconsequential in some cases. Nevertheless, the general pattern of female superiority in readiness is evident.

Table 1
Mean Raw Scores for Boys and Girls on Readiness Tests

Sex	Variables							N
	Pintner	Durrell-Murphy Phonemes	Durrell-Murphy Total Letters	Durrell-Murphy Learning Rate	Thurstone Identical Forms	Metropol. Word Meaning	Metropolitan Listening	
Boys	37.39	24.91	32.39	9.65	15.29	9.32**	9.12	1659
Girls	39.13**	27.65**	35.94**	10.11**	17.19**	8.92	9.33*	1624
Total								3283

* significant at the .05 level

** significant at the .01 level

The one readiness measure on which boys performed significantly better than girls was the orally administered test of general vocabulary. Except for the listening test, where only slight sex differences were noted, all of the other measures on which girls excelled involved some measure of visual or auditory discrimination. As will be seen later, this finding is predictive of things to come.

Sex differences in first grade achievement

Achievement at the end of the first grade was measured by means of the Stanford Achievement Test, Primary Battery 1. Five subtests were used to measure reading and general language ability:

1. Word Reading, a test of the ability to identify a word without the aid of context.
2. Paragraph Meaning, a measure of the child's ability to comprehend connected discourse ranging in length from simple sentences to paragraphs of six sentences in which the required comprehension skills range from simple recognition to the drawing of inferences.
3. Vocabulary, a measure of understanding vocabulary independent of the pupil's reading ability.
4. Spelling, a dictation-type exercise.
5. Word Study Skills, a measure of auditory perception and phonics ability.

The analysis of sex differences in first grade achievement followed the same pattern as that used to test differences in reading readiness. Again significant project differences were found for each measure. Pupils differed considerably among the eight

projects in achievement after one year of instruction. Again, however, no significant sex by project interactions were noted. Whatever sex differences in achievement existed were consistent from project to project. It should likewise be emphasized that sex differences in first grade achievement were not related to any specific method or materials for teaching beginning reading. Sex differences which existed were consistent regardless of the method or materials employed. Information leading to this conclusion is provided in the original report of this study (2).

Mean achievement for boys and girls at the end of grade one is reported in Table 2. Girls were significantly superior on tests of word recognition, paragraph comprehension, spelling, and word study skills. Again, the only area in which boys could compete on equal terms involved understanding vocabulary measured by an oral test. The findings support the trend observed with regard to sex differences in reading readiness. Girls are superior on tests involving visual and auditory discrimination, which at this point are largely reading and spelling tasks. Boys do just as well on tasks which do not involve these perceptual abilities.

Sex differences in second grade achievement

A wider variety of measures was used to assess second grade achievement of boys and girls. The instrument used was the Stanford Achieve-

Table 2
Mean Raw Scores for Boys and Girls on Five First-Grade Achievement Tests

Sex	Variables					N
	Stanford Word Recognition	Stanford Paragraph Meaning	Stanford Vocabulary	Stanford Spelling	Stanford Word Study	
Boys	21.81	20.15	22.63	11.95	38.00	1659
Girls	23.27**	23.20**	22.64	13.45**	40.02**	1624
Total						3283

** significant at the .01 level

ment Test, Primary Battery 2, which includes the following subtests:

1. Word Meaning, a measure of the child's ability to read a sentence and select the correct word to complete the sentence.
2. Paragraph Meaning, a multiple choice type of cloze test.
3. Spelling, a test of the ability to spell from dictation.
4. Word Study Skills, a test of auditory perception and phonic skills.
5. Language, a test of usage, capitalization, and punctuation.
6. Science and Social Studies Concepts, a test of the pupil's ability to understand the specialized vocabulary of science and social studies independent of reading ability.
7. Arithmetic Computation, a test of the child's ability to perform basic computations in addition, subtraction, multiplication, and division.
8. Arithmetic Concepts, a test of the child's knowledge of concepts of counting, measures, place value, fractions, and ability to read and solve numerical problems.

this test, sex differences were not consistent from project to project. The reason for the interaction is evident from the data presented in Table 3, which presents mean achievement on the language subtest for boys and girls in each of the eight projects. In seven of the eight projects girls were superior, but the extent of the superiority varied. In one project the two sexes were equal in achievement. Therefore, although a significant sex by project interaction existed, the data indicate general superiority in usage, punctuation, and capitalization favoring girls.

On all other measures no significant interactions existed. Whatever sex differences were found were consistent from project to project. Furthermore, the final report of the Cooperative Re-

Table 3
Mean Language Raw Scores for Boys and Girls Within Individual Projects

Sex	Projects							
	1	2	3	4	5	6	7	8
Boys	43.3	36.5	37.4	38.7	36.5	37.0	39.1	40.3
Girls	43.3	39.1	39.8	41.4	41.2	39.6	41.9	45.3

The data were analyzed in the same manner as the readiness and first grade data blocking on sex and project. Project differences independent of sex were highly significant, once more indicating that pupils varied greatly in achievement from project to project. Only one sex by project interaction was significant, however, and that was the one involving performance of boys and girls on the language subtest. On

search Study reports no relationship between instructional methodology and sex differences at the end of grade two (3). There was no indication that boys or girls profited uniquely from any method used in the study.

Sex differences on the various measures of second grade achievement are reported in Table 4. Girls were significantly superior in achievement in word reading, paragraph comprehen-

Table 4
Mean Raw Scores for Boys and Girls on Second-Grade Achievement Tests

Sex	Variables								N
	Stanford Word Reading	Stanford Paragraph Meaning	Stanford Science and Social Studies Concepts	Stanford Spelling	Stanford Word Study	Stanford Language	Stanford Arithmet. Computation	Stanford Arithmet. Concepts	
Boys	19.50	31.25	20.43**	14.43	38.57	38.57	21.91	20.44	1659
Girls	20.84**	34.24**	18.57	17.26**	41.03**	41.51**	23.15**	19.92	1624
Total									3283

** significant at the .01 level

sion, spelling, word study skills, language, and arithmetic computation. Boys were significantly better in understanding science and social science concepts, a task in which no reading was involved. Furthermore, no sex differences were found in performance on the arithmetic concepts test, only a portion of which involved reading. The findings of the second grade analysis support the general conclusion of female superiority in early childhood tasks involving reading, visual and auditory perception, language conventions, and arithmetic computation. Results also support male superiority in arithmetic reasoning. This aspect of the study also supports recent research which indicates that boys are not inferior in vocabulary if this knowledge is measured independent of reading skill. An alternative explanation, of course, for male superiority on this particular orally-administered test of vocabulary is that boys perform better, not because of the lack of reading involved but because of their greater interest in science and social science. It is impossible to judge the relative merit of these alternative explanations on the basis of the data.

The reason for the sex differences found in this and earlier studies is still a subject for debate. Opinions differ concerning the extent to which sex differences are related to physical development as opposed to cultural factors. Nevertheless, this study yielded further support to the mass of evidence which demonstrates that girls have more advanced visual and auditory discrimination abilities at the readiness stage and are superior in reading ability, spelling ability, conventions of language (usage and punctuation) and arithmetic computation through the second grade. The study also supported recent surveys which indicate boys in the primary grades possess an equal, if not greater, understanding vo-

cabulary when this knowledge is tested orally.

Implications of these findings are somewhat conjectural. I would like to be able to suggest certain adjustments which should be made in instructional programs for boys and girls in order to take into account the relatively more difficult task the average boy has in learning how to read. Unfortunately, the Cooperative Research Program yielded no evidence that any instructional program was uniquely effective for boys. One might question, moreover, the practical significance of the sex differences found in reading readiness and in reading. In most cases the mean differences are not very great. Then too, it is necessary to consider the tremendous amount of overlap which occurs if one plots sex curves in readiness or achievement. Prediction would be almost impossible in any individual case. Many boys are more mature in readiness and in later reading ability than are many girls. It is only when we speak of average that sex differences stand out. In the last analysis, instruction must be geared to the individual pupil. Perhaps it matters little whether the pupil is a boy or girl.

An interesting aspect of this study concerns the generalizability of the sex differences across a number of school systems in a number of states. Whatever the reason may be for the superiority of girls on prereading measures of letter knowledge, auditory discrimination, and visual discrimination, on first grade measures of reading and spelling, and on second grade measures of reading, spelling, conventions of language, and arithmetic computation, this superiority is evident in a variety of school situations. Moreover, whatever the reason may be for the lack of female superiority in performance on orally-administered tests of general vocabulary, this finding is consistent across a number of school systems. It

is likely that teachers throughout the United States can expect to find similar differences in readiness and reading achievement for boys and girls. Perhaps one conclusion should be stressed. If extent of vocabulary is a measure of intelligence (as is generally assumed), boys are probably just as intelligent as girls. Many primary group intelligence tests, however, would probably reveal the average girl to be somewhat more intelligent. The reason for this conjecture is that many such tests carry a heavy loading of visual discrimination. Teachers must guard against concluding that boys are less able to learn simply because they may have relatively more difficulty with certain reading-related and writing-related tasks.

This discussion answers few questions about sex differences in primary grade achievement. Little has been said that will help the classroom teacher know what to do about sex differences in reading readiness and in primary grade achievement. Perhaps, however, this discussion will provide stimulation for further research in this very puzzling area. In the last analysis, that might be a very significant contribution.

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School Entrance Variables and Later Achievement and Personality

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EDUCATORS ARE AWARE of the fact that many children, especially culturally deprived children, make their entrance into regular school ill equipped to set a pattern of successful performance. The placement of children in inappropriate grade levels is widespread. Overplacement problems occur when children are assigned to school programs which are too advanced for the developmental level of the children involved (6, 15). The misplacements of children within school programs are a result of a variety of situations. Among other things, criteria for school entrance differ among the various states. The vast majority of states, however, use chronological age as the sole criterion for entrance to first grade. Many state laws and current admission practices are not consistent with the large backdrop of knowledge concerning individual differences (1, 2).

Statement of the problem

The problem of this study involved the exploration of several open ques-

tions regarding school entrance variables of culturally-deprived children. A general assumption regarding school entrance of middle class children has been that older school entrants have a definite advantage over younger entrants in later achievement and personality adjustment. An attempt was made in this study to test this popular assumption regarding the effects of chronological age at school entrance upon fourth grade achievement and personality adjustment. A second major aspect of the problem was an attempt to assess the relative importance of measured readiness level at the time of first grade entrance upon fourth grade achievement and personality adjustment of culturally-deprived children. In studies of middle class children, sex differences have been reported in which girls consistently rank higher than boys on objective measures of school achievement. This study has attempted to assess not only sex differences in achievement patterns, but in personality measures as well. The fourth and final factor of importance in this study was the differential findings of Negro and white culturally deprived children for measures of achievement and personality adjustment. Typical findings in the research literature reveal that Negroes are consistently below whites in both academic attainment and personality adjustment. This study has attempted to contribute additional objective data on these matters regarding culturally-deprived school children.

The importance of the study

Few investigations which focus upon school entrance variables of the culturally deprived are found in the research literature. The vast bulk of research which considers achievement patterns of different age groupings within a given grade level has been done with middle and/or upper class children. One of the most comprehensive of

these studies was authored by Devault and others in 1957 (10). In their study, all schools selected were located in middle and/or upper class Anglo-American neighborhoods. In an objective attempt to set forth the limitations of their study, Devault, et al (10) state the following:

It is believed that the conclusions that are drawn from the data collected are valid as applied to the problem in the setting described. If solutions to the same problem with other types of populations are to be found, involving different racial and ethnic groups, then additional investigations will be required.

The result of the studies reviewed also were contradictory. Inadequate sampling procedures may account for these contradictory findings.

Although several investigations related school entrance age to achievement, few studies were found which include personality variables. It is well recognized that personal and social adjustment are important factors in academic growth (9, 18). Definitive studies are needed to explore the relationships of school entrance variables to later personality adjustment as well as to academic achievement, with particular focus on the culturally deprived child.

Procedures

The present research explored first grade entrance variables as they related to fourth grade achievement and personality adjustment of 1,110 pupils from 39 schools which serve culturally deprived neighborhoods in Metropolitan Nashville, Tennessee. There were 672 Negro pupils and 438 white pupils in the study. School entrance variables (main effects) included chronological age (CA), readiness level, sex, and race. All subjects were born in the same calendar year (1956) and entered school in the fall of 1962. Fourth grade (1965-1966 school year) fall achievement test scores and spring personality test scores were analyzed

by analysis of variance techniques. Achievement areas were measured by the Metropolitan Achievement Test and included three basic areas: reading, spelling, and arithmetic computation. Personality adjustment scores were measured by the California Test of Personality and included three adjustment areas: personal adjustment, social adjustment, and total adjustment.

Subjects were classified into four chronological age (CA) groups depending upon the month of birth. CA group 1 included January, February, and March births. CA group 2 included April, May, and June births. CA group 3 included July, August, and September births. CA group 4 included October, November, and December births.

Pupils also were classified into three levels of readiness based upon Metropolitan Readiness Test scores obtained in the first month of school after pupils entered the first grade. The three levels of readiness were 1) above average, 2) average, and 3) below average. Sex and race were additional variables by which subjects were classified.

Employing the classification system described above, data from the six dependent measures (reading, spelling, arithmetic, personal adjustment, social adjustment, and total adjustment) were analyzed separately by using a $4 \times 3 \times 2$ factorial design for the Negro and white samples, and $4 \times 3 \times 2 \times 2$ factorial design for the total sample.

Summary of results

As opposed to several previous research studies relating school entrance variables to achievement and adjustment, CA in this study was not an extremely important factor. CA was a significant main effect in only one of 18 analyses. First grade readiness level was highly significant as a source of variation in 14 out of the 18 analyses. Exceptions were the three social ad-

justment analyses and the total adjustment analysis of white pupils. For significant findings relative to sex difference, girls consistently attained higher scores than boys. Significant sex differences were observed for five out of nine achievement analyses and five out of nine personality analyses. The major exceptions involved arithmetic and personal adjustment measures in which no significant sex differences were found. The usual race difference in achievement was found in which Negro pupils did not perform as well as white pupils. No race differences, however, were evidenced for personality measures. The significant findings of this study are summarized below.

Main effects

Chronological age. Table 1 indicates the only situation in which there was a significant difference among age groups. Reading scores of CA groups of Negro pupils were significantly different. Mean reading scores favored CA groups of these students in the following order: CA 1, CA 3, CA 2, and CA 4. The oldest pupils scored significantly higher than the youngest pupils ($p < .05$). No significant differences among CA groups were found in 17 of 18 analyses.

Readiness level. Differences among readiness levels were significant in 14 out of 18 analyses (Table 1). A consistent pattern was found in which the following order, from highest to lowest was observed: above average, average, and below average. Significant differences were invariably at the .01 level of confidence. All analyses of variance of achievement scores were significant in showing differences among levels of readiness. Negro, white, and total analyses of personal adjustment scores as they related to readiness were significant. No significant differences among readiness levels were observed for social adjustment. Negro and

Table 1

Summary Table of Significant Main Effects for Each Analysis of Variance Showing Level of Confidence

Dependent Measures	Sources of Variation										
	Chronological Age ^a			Readiness Level ^b			Sex ^c			Race ^d	
	Negro	White	Total	Negro	White	Total	Negro	White	Total	Total	
Reading	.05	N.S.	N.S.	.01	.01	.01	N.S.	.05	.01	.01	
Spelling	N.S.	N.S.	N.S.	.01	.01	.01	.05	.01	.01	.01	
Arithmetic	N.S.	N.S.	N.S.	.01	.01	.01	N.S.	N.S.	N.S.	.01	
Personal Adjustment	N.S.	N.S.	N.S.	.01	.01	.01	N.S.	N.S.	N.S.	N.S.	
Social Adjustment	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	.01	.01	.01	N.S.	
Total Adjustment	N.S.	N.S.	N.S.	.01	N.S.	.01	N.S.	.05	.05	N.S.	

^a Mean scores for the one significant finding favored CA groups in the following order: CA 1, CA 3, CA 2, and CA 4.

^b For significant findings, mean scores consistently favored readiness levels in the following order: above average, average, and below average.

^c For significant findings, without exception girls were favored in comparison with boys.

^d For all significant findings, white pupils were favored in comparison with Negro pupils.

total analyses regarding total adjustment were significant.

Sex. Significant sex differences were observed in 10 of the 18 analyses (Table 1). For significant findings, girls scored higher than boys without exception. Results of significant sex differences were observed for the following: white and total, reading analyses; all, spelling analyses, all, social adjustment analyses, and white and total, total adjustment analyses.

Race. Negro pupils did not perform as well as white pupils on measures of achievement (reading, spelling, and arithmetic). These differences were significant at the .01 level of confidence. No significant race differences were obtained for personality adjustment variables.

Discussion

Recent studies (19) of cultural deprivation related to educational practices are numerous. The findings of the present study affirm many of the current positions regarding educational implications for culturally deprived children. Within the discussion which follows, educational implications and suggestions for further research are interwoven.

Admission policies. Most state laws

which govern first grade school entrance rely solely on a chronological age criterion. In Tennessee, according to existing legislation, children entering the first grade must be six years of age on or before September 30.

The weak relationship in this study between first grade entrance age and subsequent achievement and adjustment lends support to providing more flexible school entrance policies. If educators and legislators insist upon a strict age criterion for first grade entrance, however, educational provisions for individual differences should be given additional attention, especially for culturally-disadvantaged children. Existing evidence does not support the use of CA alone in the determination of initial and later school success and adjustment.

The need for multiple criteria for first grade entrance, especially for culturally-disadvantaged children, again was demonstrated in this study. In terms of the variables explored, initial school readiness was related most strongly to fourth grade achievement and adjustment. However, no combination of variables in this study could provide enough information for a decision regarding the school readiness of individual children. Therefore, no

generalization should be made to individual youngsters who are at the threshold of school entrance. This argues for idiographic studies which take into account a multiplicity of variables, including the first grade entrance variables used in this study and other variables necessary for a careful child study.

Preschool testing. The use of idiographic studies is the natural alternative to the application of nomothetic findings (which are often used inappropriately, as they are applied in decisions regarding individual children). In this study, fourth grade achievement and adjustment were differentiated most sharply by levels of first grade readiness as compared with other independent variables (CA, sex, and race). The main effect of readiness, being significantly ($p < .01$) related to later success in school, raises the possibility of an even more refined procedure whereby youngsters could be evaluated before first grade entrance. Evaluation results would provide school personnel with necessary pupil data to insure the "proper match" of pupils and curriculum content (12). A community-wide preschool developmental testing program would be useful. Such a program may be designed similarly after the model of Ilg and Ames' (15) developmental appraisal techniques in which children are administered individual readiness tests by trained examiners.

Aspects of personality adjustment. The results of all personality adjustment analyses revealed that chronological age was not a significant source of variation. An interpretation of this finding tends to minimize the age variable with respect to personality adjustment.

Every analysis of personal adjustment and two of three analyses of total adjustment revealed a linear trend in which above average readiness pupils had higher adjustment scores than av-

erage readiness pupils, and below average readiness pupils had the lowest adjustment ratings. This supports the idea that a good start in school, as determined by readiness tests, has value in predicting later personal and total adjustment as measured by the CTR. On the other hand, readiness level was not a significant source of variation in the analysis of social adjustment. Speculations regarding this finding may result in testable hypotheses for future investigations.

Every analysis of social adjustment revealed that sex was a significant source of variation in which girls scored higher than boys ($p < .01$). Girls also excelled boys in 2 of 3 analyses of total adjustment ($p < .05$). No significant sex differences in personal adjustment were observed. Practical applications of these findings need further study.

The culturally and economically disadvantaged generally are characterized by negative self-images. This statement found support in the present study in which the mean total adjustment score was a percentile rank of 30. This one finding was typical of conclusions reached by many authorities of disadvantaged groups (19). For example, Passow and Elliott (17) affirm that "The scholastic performance of many disadvantaged children suffers from their lower self esteem, lower sense of personal worth, and lower aspiration level." The reversibility of self-debasement is extremely complex. A global approach has been to combine the resources of school, family, and community. This preferred approach is preventive as well as remedial, since preschool treatments are prescribed as well as corrective programs at higher age levels.

Personality adjustment analyses in this study showed no significant differences between Negro and white pupils. Special focus in the research literature has depicted Negro pupils with lower

self-concepts with the attendant feelings of inferiority (4, 6, 17, 19). Additional research may be needed before adequate explanation can be made for the lack of any significant differences in personality measures between Negro and white pupils.

Compensatory education. Children who scored low on first grade readiness tests also scored low on achievement and personality tests four years later. Several questions remain unanswered. Could this low attainment have been prevented? How? Had the level of readiness been raised would there have been proportionate dividends in achievement and personality adjustment? Recent advocates of preschool programs and other compensatory efforts which attempt to modify unfavorable environmental and experiential conditions are optimistic and suggest that the spiral of failure and personal devaluation can be reversed appreciably. (4, 11, 14, 16).

Barbe (5) discussed the question, "Can anything be done for the educationally retarded and disadvantaged?" In this question was implied the need for something extra, or remedial, in supplementing standard educational procedures. Various intervention treatments have established that relatively stable characteristics can be modified (7, 13). It has been well documented that culturally deprived children, because of inadequate preschool experiences, often are diagnosed as unready for standard school offerings. This, according to Havighurst and others (12),

... leads either to the obvious prescription of compensatory instruction or to the prognosis of low expectations and aspirations. School-created compensatory experiences prior to the primary grades or remedial work after a child enters these grades are intended to bring pupils into the mainstream of school life; without one or the other, many are marked for low attainment and failure.

The fact that slightly over forty per cent of the total population in this

study had below average readiness scores upon entering first grade suggests a dire need for preschool experiences designed to raise the level of readiness. This suggestion finds support from numerous authorities (6, 8, 11).

Differential programs for boys and girls need further study. In this study the usual sex difference in achievement was found. The need for flexibility of educational offerings is implied where provisions are made for multiple levels of learning. These same statements regarding sex differences could apply to race differences in which white pupils consistently excelled Negro pupils on measures of achievement.

The problems regarding inappropriate grade placement of pupils need extensive study. Alternatives to the traditional system of promotion retention should be explored. Fruitful areas of research involve the continuous need to adjust curricular offerings to pupil characteristics.

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An Empirical Investigation of Early Reading Responses of Young Children

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ALTHOUGH THERE IS MUCH CONCERN with preschool education and beginning reading instruction, there is very little theorizing or investigation about what the child does when he first learns to read. A review of the literature in early reading reveals that some

children learn to read before they have received formal reading instruction. Moore (4) found that some children learned to read through self-directed effort without being forced into highly specialized schemes. Terman (6) found in his studies of the gifted that nearly half learned to read before starting school, and Durkin's studies (2) reveal data on socioeconomic and mental factors related to preschool reading. Boney (1) advanced the theory that children learn to read as naturally as they learn to talk.

Basis for the hypothesis

This study attempts to test the theory that children begin the reading process by discovering for themselves that printed words are substitutes for audible symbols which are used to identify objects, actions, or situations. There is a world of difference between the concept of reading as a skill acquired only through formal instruction and the concept of reading as a natural emergence of language development. The basis for the theory is drawn from growth and development studies, from Piaget's observations of cognitive growth, and from various learning theories.

Ketchum (3) points out that speech and reading growth represent sequentially developing integrative levels in language growth and further emphasizes that reading is related to growth as a whole. Inference and analogy enable the investigator to use Piaget's work to support the theory that as the child interacts in a print culture he becomes aware of a printed word symbol, abstracts it from its contextual setting, classifies and orders it, and assimilates it in a language system he knows. Printed word symbols are at first external "unknowns" and become internalized through the organism's experience in a print world. A stage by stage sequence, from passive awareness to independent word recognition and

tise in a total of possibilities rather than in the first empirical situation, is parallel to Piaget's theory (5) of transformed reality and assimilation of the known schema to schemas of other transformations. The child moves from stage to stage through a successive process of equilibration.

The extensive field of learning theory precludes an exhaustive report of inferential support for a theory of the reading process. A brief sketch of learning theory indicates the relevance of the young child's exploratory behavior which leads to curiosity and maximum contact with the environment, perception as something the organism does, and the sequential transition from purely sensory to cognitive perception as a function of memory.

One way to test assumptions is to state them in hypothetical model form and then observe and compare the response behavior of human subjects as they perform within the framework of the structure. In the interest of experimentation and exploration, and in the spirit of tentativeness, the investigator has devised a hypothetical structure (inventory) that embodies the hypothesis that occasioned it. The investigator admits the error of "value analogy" in assuming correspondence between various growth and learning areas and the stages of a reading process as presented.

Statement of theory

It is assumed that a child's first printed word symbol recognition is made through use of any and all associated cues in meaningful context. The rapidity with which a child abstracts a word symbol from context and recognizes and uses it independently will be closely related to his intelligence. This is consistent with the learning theory that the word is an abstract symbol for an object, an act, or a situation. This, in turn, is consistent with the theory that reading consists of

differentiating symbols or decoding sounds and letters which have been arranged in patterns of arbitrary units. Reading consists of reconstructing the message in this code. These assumptions are consistent with modern learning theory which emphasizes perception, reinforcement, and meaningful integration of experience.

The hypothesis derived from the theory of this study is that children proceed through the process of learning to read in the following identifiable steps:

1. A child meaningfully experiences or becomes aware of a printed symbol in its natural setting, assisted by parents, peers, siblings, and others.
2. A child isolates the printed word symbol from its associated context, and the printed symbol becomes the primary focal point. At this point the child says the word when he sees it and is aware that the printed word "stands for" the spoken word.
3. A child recognizes that a printed word symbol is used to describe a number of similar but different situations. The printed word STOP is recognized in any and all contextual situations in which it may occur.
4. A child realizes that the symbol can stand alone without an associated context.
5. A child recognizes a cluster of printed word symbols in simple sentence structure.

It seems reasonable to assume that some children will be found who have not begun the process, some who have progressed part way, and some who have completed the process. The major dimensions which determine the process are age, intelligence, and socio-economic background.

To test the existence of this process, the investigator has devised a hypothetical structure which recapitulates the process through which the child advances. Twenty-five printed word symbols selected on the basis of assumed frequency of occurrence in the child's natural environment are arranged in a series of response alternatives. The series includes the following:

1. Photograph of each symbol in its natural setting.

As it is impossible to test each subject at the actual place where a symbol can be seen, a photograph is used to bring the place, situation, or object where a symbol is to the viewer. As the child views the photograph he exercises ready-made schemata, and is able to view the "whole" undifferentiated setting.

2. Drawing of each symbol in its natural setting.

A drawing representing a "vanished object" is one step further than the photograph from the actual natural setting.

3. Drawing of each symbol in its immediate setting, as STOP, on a stop sign.

At this stage the child has begun the search for an object, an act, or a situation. He focuses upon a single aspect or a part of the whole, but needs some of the contextual background as supporting cues. Visual perception is becoming specific, intentional, and symbolically meaningful.

4. Symbol printed in isolation.

At this stage the object, idea, event, or situation can stand alone, or in Piagetian terms, it has achieved object permanence in the thought of the child. The meaningful substitution of the printed word symbol for an object, an act, or a situation has been assimilated or internalized. It is remembered without the aid of visual contextual cues.

5. Symbol printed in sentence context.

At this stage the schema is repeatable and generalizable. The child utilizes and incorporates it in assimilative fashion and can use it for social adaptation.

6. Symbol printed in story context.

This stage is an extension of the fifth stage and provides additional accommodation and assimilation of the reading schema.

In summary, the child alternates from an active to a passive to an active role, assimilating, integrating, organizing, adapting, and accommodating the print stimuli to a language system to which he is born.

The symbols used are the following: *Stop*, *In*, *Life*, *Coca Cola*, *One Way*, *U.S. Mail*, *Little Red Riding Hood*, *School*, *House for Sale*, *Slow*, *Cheerios*, *House for Rent*, *Pass with Care*, *Open*, *Wonder Bread*, *Post Office*, *The Three Bears*, *Entrance*, *Out*, *Exit*, *Do Not Enter*, *Keep Right*, *Speed Limit 25*, *Milk*, *Apples*. Symbols of more than one word are considered as the items in this study, for example,

U.S. Mail and *Wonder Bread* are composed of more than one word but represent single meaningful printed symbols. It is assumed that the child recognizes the total meaningful printed symbol and not just a single printed word symbol.

Method

The total inventory consists of 150 items—twenty-five printed word symbols with a six-stage sequence for each. It is possible that the inventory, the hypothetical structure, measures responses to arbitrarily selected printed word symbols which may or may not be representative of an individual's total reading ability. For the purpose of testing the theory of the reading process, however, it seems reasonable to assume that the words constitute a child's natural print environment. The first three steps consist of the printed word symbol in its natural setting, and the remaining steps consist of the printed word symbol outside its natural setting.

The inventory was administered to a group of four-, five-, and six-year-olds, individually and orally by the investigator. Individual differences were considered in time allotment decisions. The examiner first tested each subject on step one, the photograph of a printed word symbol in its natural setting. At each presentation the examiner pointed to the word or words and asked, "What does it say?" If a subject made a correct response to step one of any of the twenty-five photographs, the examiner tested the subject on step two and step three during the first test situation. If, after two trials, a subject did not respond correctly to step one for any of the items, the examiner considered the subject's responses in the "no-response" category. It was assumed that further testing was unnecessary. While it is possible that giving each subject a chance to respond to all six steps, whether or not

he recognized the words at step one, would have more accurately tested the step-by-step sequence. The investigator considered two trials on all twenty-five words in the photographs a reasonably reliable criterion of reading status. Then, too, continuing the test beyond step one after two totally unsuccessful trials could have created a frustrating experience for the child. If an incorrect response to the question indicated misunderstanding of test directions or a response to another cue, the examiner again pointed to the specific word and asked, "What does it say?" If a subject recognized additional words in context, this information was recorded in a verbatim report of the subject's verbal responses.

The remaining three steps were used in a later testing session. In view of the possibility that a child might learn the word in the first session, a time interval of one week was allowed between the two tests. It is assumed that the abstraction of the printed word symbol from its natural setting at step four is the stage at which the subject perceives the printed word as a substitute for an object, an act, or a situation. A subject may make no correct responses beyond point three. In such a case, it is assumed that he cannot recognize the printed word symbols used in this study in isolation or in language context. The inventory was scored by counting the number of correct responses to the items. If a subject responded correctly to one printed word symbol, or item, at the first step (step one photograph), he achieved a score of 1 on the inventory. If a subject responded correctly to one item through four steps (step four, isolation), he achieved a score of 4. A subject's score is arrived at by counting the number of steps recognized per item and the number of items recognized. A subject may recognize different step levels: for example, item 12 at step two, item 18 at step one, item 6

at step five. A total score of 150 is arrived at by multiplying the correct responses to twenty-five items by the six sequential steps at which each item may be recognized. Consequently, if a child responds correctly to all twenty-five items through 6, he has a score of 150, the highest possible score on the inventory. Scores are recorded on a profile chart which also contains data on age, IQ, socioeconomic status, and the subject's verbal report.

Subjects

The subjects for this investigation were 229 children in the following age groups: 82 four-year-olds, 76 five-year-olds, and 71 six-year-olds.

Limitations

The exploratory design of this study limits the general applicability of the results. As the results are used to identify relationships between groups differing in age, sex, and socioeconomic status, they do set the stage for further experimental study.

Another limitation is the fact that the inventory was not standardized. The results, however, could provide a basis for preparation of a more precise instrument for measuring early reading status and reading readiness.

It is generally recognized that early readers are bright children, and the selection of subjects who could read at an early age thus resulted in an overrepresentation of high IQ subjects. This sampling bias restricts the possibility of making inference about any group of children other than those used in the present study.

The exploratory nature of this study precluded direct evaluation of the multiple factors related to early reading ability. The investigator did note informally, however, the subject's hearing and vision, and found no serious defects.

Despite the limitations indicated above certain conclusions can be drawn from the analysis of the data.

Results

The results of the inventory show that 17 of the 229 subjects read all of the items, 109 read some items, and 103 read none of the items. The data are reported as mean recognition scores for items; for example, a mean score of 4.00 indicates that an item was recognized through step four, the level of abstraction. Subjects who recognize some words in isolation (step four) recognize other words only at step one, others through step two, and some through step three. It is theoretically assumed that a subject who recognized an item at step four at the time of this study recognized the item at step one, two, and three at some earlier time and progressed in a sequential manner. As an individual's response to each item recognized constitutes a step-by-step recognition pattern, and as the pattern of response (mean scores for items) for the total population shows the same dispersion over the six-step sequence, it is projectively inferred that the reading process occurs in a step by step sequence. Children who recognized some words at various steps seemed to move gradually from a first step of awareness of printed word symbols in the photographs to a search for further cues. One subject said *private* for the item *school* and explained that the sign is near his home. He pointed to the letter in *milk* and said it begins like *mark*. The response to *school* seems to indicate an awareness that the print symbol represents a word he knows—in this case, *private*. In the word *milk* the child recognized a specific cue. Some young children asked to see the photograph again when they could not recognize an item in isolation.

Many children said *slow* for *school* and vice versa, for both are symbols on signs of the same shape and color. Many said *stop* when shown only the shape of the stop sign. One child said

he could not read a word unless he knew the word first. He offered the information that "saying a word isn't reading it." Many children said they "can read words on pictures but that's not real reading." Some children identified several items as "non-school" words. One child said *yife* for *life*, and recognized the word through the six steps. It cannot be known for certain how the child perceived the letter *l*, but his response did not seem to be dependent on the visual or auditory discrimination of the letter *l* but rather on the global meaning he attached to the symbol *life* associated with the cereal box he recognized in the picture. The recognition of *Coca Cola* printed in fancy cursive style, and *stop* printed in Roman bold-face type, seems to indicate that the style or type of print made no difference. Some subjects could name objects in the photographs but could not recognize the corresponding printed word symbols.

Many young children seemed to recognize words in their semantic setting. For example, some children said they recognized *entrance* because it is like *exit*.

If it can be assumed that chronological age reflects maturation, the results of this study show that reading at an early age is related to maturation.

Early readers had higher mean IQ scores than nonreaders and were largely from higher socioeconomic levels. No difference in early reading status was found between boys and girls.

Implications

The findings of this study hold implications for reading in the school situation. The theory that the reading process derives from learner-environment interaction suggests that reading is an integral part of all learning activity and not a separate school subject. The children's comments indicate the

importance of oral language as a basis for discovering the reading process and point to the importance of the language experience approach to reading instruction.

The question of whether or not to teach reading at the kindergarten level becomes pointless when reading is viewed as a natural outgrowth of language development. Reading, then, is a mental process and begins with the child's first stage of awareness; it has no identifiable end point and cannot be considered in a grade level context. Reading readiness, as a state of the organism, is considered the existing schemata which make it possible for the child to profit from experience.

If the results of the study, the children's responses, and the report of their perceptions of the reading act reveal the nature of the process, perhaps an emphasis on methods and materials needs to be questioned and examined more carefully.

The results suggest that, since no antecedent or postinventory events are measured in this study, a longitudinal study is necessary to measure an individual's progress along the six step continuum. Such a study is now in progress.

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Cues in Word Perception in Relation to Osgood's Integration Principle

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EXPERIMENTS HAVE DEMONSTRATED the existence of three types of cues in identifying words: 1) individual letters, 2) small letter groups, and 3) word shapes or forms. Anderson and Dearborn (1952) cautioned however, that these cues function only when the words are familiar. Words that are unfamiliar to the student cannot be perceived except by the process of analysis. The confusion in much of the research reported on the cues most important in word perception is probably the result of failure to separate the research related to known words from unknown or nonsense words.

It has been suggested by a number of researchers that children recognize words as a whole (Cattell, 1886); by shape, outline, or configuration (Tinker & Paterson, 1940); by grapheme-phoneme correspondence (Gibson, 1962); by ascending or descending letters (Wilson & Fleming, 1938); by initial and/or terminal letters (Levin, Watson & Feldman, 1964; Marchbanks & Levin, 1965); or by a combination of the cues (Gates & Boekker, 1923).

Many of the studies cited used adult populations. Dissemination of the research findings has resulted in the assumption that children learning to read respond in the same way as adults. This concept certainly is in error, since children with no or very limited learning experience of this type certainly differ in their learning behavior from adults who are applying all their previous experiences to the new task.

In beginning reading, instruction configuration is considered by many authorities to be one of the most im-

portant methods of word attack. Smith (1963) discussed configuration clues in the following way:

This word shape has been found to be the strongest cue to recognition. A child may have little or no difficulty in learning to recognize *Grandfather* because of the characteristic shape of the word, while he may have a great deal of trouble in recognizing *is* because it does not have a distinctive shape.

The basic problem with which this study was concerned was the visual recognition of words by beginning readers. Osgood, in developing his mediation-integration model, has tried to generalize the theories of Guthrie and Tolman to a behavioral basis for a theory of signs. He postulates that whenever a sign (word) stimulus is associated with a significant stimulus, the behavior observed is produced by the sign in an anticipatory way. In a behavioral context it appears that the nervous system reflects, in its own organization, the regularities and repetitions to which it is exposed. On the basis of this behavioristic concept, Osgood concludes that the more frequently a word has been seen, the more we can reduce the input information (e.g., with a tachistoscopic device) and still recognize the word. According to this concept, the nervous system is filling in the missing elements of a known word and completing it at a perceptual level. Similarly, on the output phase, redundant motor sequences come to run themselves as tightly bound wholes once they are initiated. Put another way, the greater the frequency of co-occurrence of either stimulus (SS) or response (RR) events, the greater will be the chance of the neural correlatives (SS or RR) to elicit each other. Osgood (1957) refers to this as an integration principle.

The purpose of this study was to investigate the input side of Osgood's behavioral model (i.e., we can reduce the input information and still recognize the word).

Method

Task. From the basal readers used by the students, fourteen words were selected: am, blue, find, help, and, can, for, here, at, cone, funny, jump, big, and do.

Using these words, fourteen four-choice response sets were constructed, with specific assignment of the four response words to each item. The subjects were asked to choose from the four words that word which was spoken by the examiner. Response choice was made by circling the word heard.

The words on the student's response sheets were designed to present words that had similar configuration in length, the same initial configuration, the same final configuration, or a change in direction of ascending and/or descending letters. Whenever possible, several similar cues were used.

Each subject was administered the test five times at intervals of one per day. In order to eliminate the chance of memory of the presentation pattern, the order of presentation of the stimulus word was changed, although the foil words within the individual items were not.

The first testing was done without a tachistoscopic device being used. The student was merely asked to circle the word he heard. All students who responded correctly on all the fourteen items were retained for further evaluation. The remainder of the testing was administered by flashing the word on a screen and asking the student to circle the word he saw. The *Perceptomatic* was used to flash the words at a rate of 1/10 of a second, 1/25 of a second, 1/50 of a second and 1/100 of a second. The procedure for recording of the response was the same as that used in the first test.

Subjects. The subjects were 140 first graders with a mean age of 6.64 years. The subjects were instructed by the basal reader approach. New

words were generally introduced in the sentence context as it would appear in the reading material, with the first letter of the new word given as a clue. At the time of testing, the first graders had six months of this type of instruction.

Results. Table 1 shows the proportion (percent) of subjects selecting the correct stimulus word for each of the four tachistoscopic speeds. The mean,

standard deviation, and test reliability on each of the four test administrations is also indicated. There was a significant difference between the means at the .01 level between words flashed at 1/10 second and 1/50, 1/100; 1/25 and 1/50, 1/100; and 1/50 and 1/100.

Table 2 indicates the incorrect stimulus word chosen by ten percent or more of the subjects at each of the four tachistoscopic speeds.

Table 1
Proportion of Students Selecting the Correct Response

Stimulus Word	Proportion of Correct Response			
	1/10 sec	1/25 sec	1/50 sec	1/100 sec
am	87.1	87.1	81.4	74.3
blue	84.3	82.1	79.3	57.9
find	85.7	87.1	65.0	61.4
help	84.3	84.3	75.0	56.4
and	88.6	85.7	73.6	65.7
can	75.0	72.9	55.0	48.6
for	90.7	87.1	87.1	75.7
here	82.1	90.7	79.3	67.9
at	69.3	78.6	63.6	66.4
come	85.7	86.4	82.9	72.9
funny	85.0	85.7	80.7	72.1
jump	84.3	85.7	75.0	70.7
big	87.9	83.6	67.1	62.1
do	95.0	84.3	81.4	70.7
x	11.85	11.81	10.46	9.23
sd	2.68	2.50	3.32	3.70
Test Reliability	.81	.76	.83	.84

Table 2
Incorrect Choice Made By Ten Percent or More of the Subjects

Stimulus Word	Speeds			
	1/10 sec	1/25 sec	1/50 sec	1/100 sec
am			can	can
blue	do		big	big
find			and	and
help			big	jump
and			can	can
can	am	am	am	am
for				big
here			big	big
at	am/do	do	do	am
come	can			can
funny				find
jump			find	find
big		for	for	for
do				blue

Conclusions

The results of the study appear to suggest that when the input information is reduced by means of increasing the speed of perception of a word with first grade subjects, the errors do increase. Osgood's conclusion that input information can be reduced and the word still recognized does not seem to be valid for the first grade subjects used in this study.

An analysis of the errors made by ten percent or more of the subjects indicates that the initial configuration was the cue most frequently used. The direction of the letter seems to be less important in perception than does the general configuration.

Implication

The general implication that may be drawn from this study is that tachistoscopic work on sight vocabulary words may not be a learning reinforcement task. If the results of this study are found in other populations, it is quite probable that tachistoscopic work on sight words at high speeds may be detrimental to the development of a sight vocabulary.

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Diagnostic Measures of Phonic Analysis Skills

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IF INSTRUCTION IN READING SKILLS is to be suited to children's needs, it is imperative that effective tests of specific skills be put into use by teachers. The skills needed in order to efficiently analyze words from the standpoint of grapheme-phoneme relationships deserve careful and valid measurement, if teachers are to remedy the phonics weaknesses which children possess.

Individually administered tests have obvious advantages over group tests in diagnosing reading problems. Testing a skill in the same type of context in which the child uses it is an outstanding example of the advantages. If a group test is found to give a true indication of a child's ability to attack words successfully, however, it would be pointless to give the more time-consuming individual tests.

A widely used group test of the skills in question is the McKee Inventory of Phonetic Skills (Houghton Mifflin). By having children circle one word of a group of five containing the same phoneme in the same position as a designated one in an oral stimulus word, the measurement of the phonic skills of a group of children proceeds. The children are not asked to look at

print and give the spoken equivalent, but to decide if a printed form begins like, or contains the same vowel element as, a spoken word.

In college and university reading clinics across the country, phonic skills are tested individually by asking children to pronounce nonsense words which have been carefully chosen to sample a wide variety of the skills being measured. In recent years, linguists have endorsed the nonsense word method of testing the important phonic skills, indicating that this method is the *ultimate* test of them. An examination of such tests by the writers has revealed that some contain grapheme patterns which are not typical of English. This latter condition would render them unfit for diagnostic use.

A third school of thought on the diagnostic measurement of the skills of phonics indicates they are best measured in a situation in which individual children are called upon to

react to printed meaningful words containing the element to be tested in a situation in which the other elements are known.

The present study

The purpose of the study reported here was to determine which of the three types of tests discussed above seemed to be the most valid in pinpointing weaknesses for remedial work. The McKee Test and writer-constructed versions of the other two types were administered to fifty-three fifth and sixth graders who were retarded in reading. The results on each of the three were compared with the results on the other two to determine test-to-test consistency. The results were then disclosed to the children's teachers, and they were asked to indicate the degree to which the different tests indicated the children's reading skills needs.

For construction of the nonsense

syllable test, the elements to be tested were added to endings that appear most frequently on words with which most children are already familiar. Vowels were tested by altering patterns of real words so that the patterns were typical of English but the words were nonsense words. In no case did the letter combination spell a real word.

The nonsense word test was administered individually. The child was instructed that the syllables were not real words, and was asked to pronounce each syllable as he thought it should be pronounced. If the element being tested was given correctly (even though the rest of the word was not pronounced correctly), it was counted right.

Familiar Dolch nouns were used as the base in the construction of the third type of test, the Substitution Test. Arranged in parallel columns were familiar Dolch nouns and words which could be recognized if the child knew the sound of the consonant or vowel substituted for a similar element in the noun. For example, if *day* was used as the familiar word, the child was asked to identify a new word spelled with a different initial consonant element (single consonant, blend, or digraph) but with the *ay* ending. Vowels were tested in similar manner.

The three tests were given within a four-day period to a particular child. The McKee Test was given to groups of eight to fourteen children at a time. Each of the other two tests were given individually. The three tests were given in random order to the subjects.

The McKee Test was given with answer sheets in the manner prescribed by the publisher. Directions were clarified by showing the children how sample items were to be marked.

For the substitution test, the children were asked to read the Dolch noun in the first column (he was told the noun if it was unfamiliar in form),

and in the blank (appearing before or within the word stem in the second column) the examiner wrote (in cursive writing) the element being tested. The child was permitted seven seconds to identify the word.

The elements tested in the study were

1. the single initial consonant sound elements *h, w, b, t, d, c, n, y, l, s, j, k, r, sh, ch*.

2. initial consonant blends *tr, fr, fl, gl, tw, sn, gr, pr, sm, sp, sq, sc*, and *str*.

3. vowel elements, short vowels, *a, e, i, o, u*, in closed syllables, long vowels, *a, i, o, u*, in final *e* syllables; and the vowel digraphs and diphthongs *ou, ea, ai, oi*, and *aw*.

Findings

There were no significant differences in group means between the scores on the McKee Inventory and the substitution test. The group had a significantly lower mean score on the nonsense word test than on either of the others. Observation of pupil responses on the nonsense word test revealed that many children were disturbed by the nonsense syllables. Certain items on the test almost consistently elicited an incorrect response. Closer study of the missed items showed a great similarity between the item and a known word. For example, *rike* evoked "rake" and *cack* elicited "crack," indicating that the tendency to read for meaning was operating, despite directions that the words were of the nonsense variety.

Analysis of individual errors

The errors made by each of the fifty-three students on individual items on each test were examined to determine the errors on each of the three types of elements checked—initial consonants, consonant blends, vowels—and the degree of consistency of errors from one test to another

On all three tests, the error rate on vowels was much higher than on each of the other two elements, but there were substantial differences in the number of errors made on different tests. Table 1 illustrates this.

Table 1

Total Errors on Each Test

Test	Consonants	Blends	Vowels	Total
McKee	37	29	150	216
Nonsense Word	91	130	189	410
Substitution	36	90	53	179

A further comparison of errors was made to determine the extent to which there was test-to-test agreement on errors. Table 2 illustrates this.

Table 2

Test-to-Test Agreement On Individual Errors

Test	Consonants	Blends	Vowels
McKee-Nonsense	*13.5%	17.0%	25.3%
McKee-Substitution	3.0%	3.4%	6.6%
Nonsense-McKee	0.0%	7.0%	21.0%
Nonsense-Substitution	8.8%	33.0%	6.3%
Substitution-McKee	11.0%	5.5%	20.0%
Substitution-Nonsense	30.6%	52.0%	43.4%

*This figure should be interpreted to mean that of all the consonant errors students made on the McKee Test, 13.5 percent of the same errors were made by the same students on the nonsense word test. The rest of the figures should be interpreted in the same manner.

It is obvious that in most of the areas measured by the tests, the degree of overlap between them was quite small.

Since it was impossible in this study to compare the results of any test with any *absolute criterion* (a measure of proved and acceptable accuracy and dependability), the data were examined to determine the nature of the situation if each test were used as a criterion, and results on each of the others were compared with it.

If the McKee Test were used as the criterion, the nonsense word test detected only 30 percent of the errors.

and the substitution test detected only 14 percent of the errors.

If the nonsense word test were used as the criterion, then the McKee Test detected only 16 percent of the errors, and the substitution test detected only 20 percent of the errors.

If the substitution test were used as the criterion, then the McKee Test detected only 15 percent of the errors, and the nonsense word test detected 45 percent of the errors.

On each test, individual children missed several items they did not miss on other tests, suggesting that the three were measuring different skills. The high overlap between the substitution and the nonsense word tests suggests that they were measuring highly related abilities.

Teacher opinions

The patterns of errors of the individual children were revealed to the teachers of the two groups. They were requested to compare their impressions of the children's phonics weaknesses as revealed by oral reading errors with the test findings. They both felt that the substitution test detected more of the actual problems than did either of the other two tests.

Conclusions

From the data obtained in the study, the following conclusions seemed to be warranted:

1. The three widely used tests of phonic skills measure different abilities.
2. The McKee Inventory lacks the accuracy to pinpoint pupil problem areas in phonics.
3. The nonsense word test failed to be completely accurate in its results because of the tendency of students to recognize nonsense words as real words.
4. Based on the comments of the teachers of the children tested, the substitution test caught more of the actual problems than did either of the other two tests.
5. The study furnishes additional evidence that the time required for individual testing is a requisite for the poor reader. The group test fails in its purpose with children who have appreciable reading problems.

6. Additional research needs to be conducted with the same types of tests, under more carefully controlled conditions, and with other tests of phonic skills such as the Botel, Bond-Clymer, McCullough, and others.
7. Research studies that compare children's actual oral reading errors with errors on tests of phonic skills would be helpful.

The Effect of Syllabic Position and Accent on the Phonemic Behavior of Single Vowel Graphemes

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WHEN TWO VOWELS APPEAR side-by-side they usually form a single grapheme, which is a written representation of a single phoneme. The phoneme commonly will be a long vowel sound, a diphthong, a short vowel sound, or a schwa, depending upon the particular vowel-pair being examined. An analysis of the phonemic behavior of each single grapheme vowel-pair is already available (3). The section titled "Related Findings" in the present article, however, may be viewed by some as a supplement to this report.

The present article is an attempt to describe the phonemic behavior of each single-vowel grapheme (*i.e.*, of each vowel when it appears without another vowel at its side, and when it does not appear in a "final vowel-consonant-e" construction).

Several investigators have examined the usefulness of two "generalizations" which presumably were formulated to describe the phonemic behavior of single vowels in two syllabic positions: open and closed. The open syllable, long vowel generalization, was found not to be generalizable to words of more than one syllable (2), and even to have a relatively low (75 percent) utility level for monosyllabic words (1,

4). The closed syllable, short vowel generalization, seems to be more valid for polysyllabic words than for monosyllabic words, perhaps because exceptions tend to fall into families of one syllable words (e.g., mild, child, wild, cold, bold, hold; night, fight, right). The findings of former studies are somewhat unclear because of the apparent differences in the authors' definitions of short vowel sounds (e.g., Is the short vowel sound before an *r* categorized as a short vowel sound, or is it placed in another category? Is the schwa sound considered to be a short vowel sound?).

Questions asked

The present study is unique because it examines the phonemic behavior of individual single-vowel graphemes in an attempt to determine whether the commonly taught generalizations are more valid for some vowels than for others. Information about accent, or stress, as a possible cue to phonemic behavior is also available in this study.

The questions asked were:

1. What is the phonemic behavior of each single-vowel grapheme when it is found in an open syllable?
2. What is the phonemic behavior of each of these graphemes in an accented open syllable?—in an unaccented open syllable?
3. What is the phonemic behavior of each single-vowel grapheme when it is found in a closed syllable?
4. What is the phonemic behavior of each of these graphemes in an accented closed syllable? In an unaccented closed syllable?

Procedure

Hanna, Hanna, Hodges, and Rudorf, in 1966, published a volume titled

Phoneme-Grapheme Correspondences as Cues to Spelling Improvement. In it, they reported the results of their computerized examination of 17,310 words: 15,284 words selected from Part 1 of the Thorndike-Lorge *Teacher's Word Book of 30,000 Words* (8), plus 2,026 words selected from the *Merriam-Webster's New Collegiate Dictionary*, sixth edition, "which were considered to be relevant to the study of a 'common core' vocabulary but had not been available from Part 1 of the Thorndike-Lorge word list" (6: 12-13). The *Merriam-Webster's New Collegiate Dictionary*, sixth edition (7), was the source for the analysis of phoneme-grapheme correspondences (See 6: 13-14). The authors of the Hanna, et al. study were concerned with furthering knowledge about spelling by examining phoneme-grapheme relationships.

The purpose of the present study is to further knowledge about reading, specifically about the phonic situation. To do so, it is necessary to look at grapheme-to-phoneme relationships. The procedure is the reverse of that used by Hanna, et al.

Using as source materials the findings of Hanna, et al. and reversing them to "grapheme to phoneme" relationships, the author of the present study was able to classify the sounds of all single-vowel graphemes for the 17,310 words examined.

Results

The grapheme-phoneme relationships for each vowel were examined. In Table 1 the findings are presented according to syllabic position, and within this, according to accent pattern—accented syllable (primary or secondary) or unaccented syllable. Both frequency and percentage data are supplied.

When available, the following pho-

nemes appear for each grapheme: long sound, long sound before an r, short sound, short sound before an r, and schwa. Also included is every other

phoneme which reached the 5 percent level in at least one percentage column. Phonemes not listed did not reach that 5 percent level in any column.

Table 1: Frequency and Percent of Occurrence of Each Phoneme for Each Single-Vowel Grapheme According to Syllabic Position and Accent Pattern

grapheme	phoneme	example	Syllabic Position											
			open syllable			closed syllable								
			Total f %	Accented f %	Unaccented f %	Total f %	Accented f %	Unaccented f %						
a	æ	hale	860	32.4	849	93.0	11	.6	142	2.8	139	4.1	3	.2
		vary	0	0	0	0	0	0	64	1.3	64	1.9	0	0
		baboon	304	11.5	1	.1	303	17.4	3888	76.6	2485	73.4	1403	82.7
		arm	58	2.2	49	5.4	9	.5	469	9.1	383	11.3	77	4.5
		canal	1418	53.4	0	0	1418	81.5	19	.4	0	0	19	1.1
		2554		913		1741		5078		3382		1696		
e	e	senior	1740	90.4	345	97.7	1395	88.8	25	.4	18	.6	7	.2
		hero	0	0	0	0	0	0	64	1.0	63	2.2	1	.03
		bat	44	2.3	1	.3	43	2.7	3272	48.3	2419	85.2	953	21.7
		after	6	.3	1	.3	5	.3	1660	24.5	0	0	1660	42.2
		angel	115	6.0	0	0	115	7.3	648	9.6	1	.04	647	16.5
		0	0	0	0	0	0	313	4.6	288	10.1	25	.6	
		0	0	0	0	0	0	620	9.2	0	0	620	15.8	
		1924		353		1571		6772		2840		3932		
i	i	china	395	14.2	294	94.8	101	4.1	159	3.4	158	5.7	1	.1
		in	1039	37.3	0	0	1039	41.9	4307	91.5	2417	85.9	1890	99.0
		pencil	1332	47.8	0	0	1332	53.7	15	.3	0	0	15	.8
		ski	23	.8	15	5.2	7	.3	15	.3	13	.5	2	.1
			2789		310		2479		4709		2781		1928	
o	o	so	1629	92.0	545	97.0	1084	89.7	247	5.8	208	9.5	39	1.9
		cord	0	0	0	0	0	0	312	7.4	262	12.0	50	2.4
		dot	0	0	0	0	0	0	1557	35.7	1425	65.0	132	6.4
		off	0	0	0	0	0	0	123	2.9	102	4.7	21	1.0
		carton	114	6.4	0	0	114	9.4	1497	35.3	0	0	1497	73.0
		0	0	0	0	0	0	265	6.3	0	0	258	13.1	
		0	0	0	0	0	0	112	2.5	110	5.0	2	.1	
		1770		562		1208		4243		2192		2051		
u	u	union	770	82.6	320	82.3	450	82.9	44	2.3	29	2.3	15	2.3
		burn	0	0	0	0	0	0	203	10.6	188	14.7	15	2.3
		cup	2	.2	0	0	2	.4	1210	62.9	996	77.8	214	33.3
		submit	42	4.5	0	0	42	7.7	255	13.3	0	0	255	39.7
		truth	82	8.8	69	17.7	13	2.4	11	.6	11	.9	0	0
		36	3.9	0	0	36	6.5	164	8.6	51	4.0	113	17.6	
		932		389		543		1923		1280		643		
y	y	by	209	11.1	123	100.0	85	4.3	2	1.2	2	1.7	0	0
		myth.	1547	97.9	0	0	1547	94.0	154	93.3	117	96.7	37	84.1
		baby												
		idyl	20	1.1	0	0	20	1.1	3	1.8	0	0	3	6.3
		marc	0	0	0	0	0	0	4	2.4	0	0	4	9.1
		1876		123		1753		165		121		44		

Conclusions

To answer the questions posed, the author decided to use a minimum of an 80 percent utility level. Therefore, in this section the number of phonemes for each grapheme are given, in order to reach at least the 80 percent level.

1. open syllables

a. The most common phonemes for single-vowel graphemes in open syllables are

e: ē - 90.4%	a: ə - 53.4%, ā - 32.4%
o: ō - 92.0%	i: ī - 47.8%, î - 37.3%
u: ū - 82.6%	y: ÿ - 87.8%

If we wish to disregard accent as a cue, the following generalization seems appropriate: In an open syllable, *e*, *o*, and *u* will have their own long sounds; *a* will have a *schwa* or a long *a* sound; *i* will have a *schwa* or a short *i* sound.

The findings about *y* in an open syllable may be misleading here.

Burmeister (2) looked at the following generalization and found it to be highly valid (99 percent): "When consonant + *y* are the final letters in a

open syllables are as follows:

e: ē - 97.7%	a: ā - 93.0%
o: ō - 97.0%	i: î - 94.8%
u: ū - 82.3%	y: ÿ - 100.0%

Generalization: In an accented open syllable, each vowel has its own long sound ($y = \ddot{y}$).

This generalization has a high validity level, but low frequency value.

The most common phonemes for single-vowel graphemes in unaccented open syllables are as follows:

e: ē - 88.8%	a: ə - 81.5%
o: ō - 89.7%	i: ī - 53.7%, î - 41.9%
u: ū - 82.9%	y: ÿ - 94.0%

In an unaccented open syllable, *e*, *o*, and *u* have their own long sounds; *a* has a *schwa* sound; *i* has a *schwa* or short *i* sound; and *y* has a short *i* sound.

2. closed syllables

a. The most common phonemes for single-vowel graphemes in closed syllables are

short	before r	schwa and other
a: ā - 76.6%	ā - 9.1%	ə - 9.6%
e: ē - 48.3%	ē - 24.5%	ə - 35.3% ä - 7.4%, ě - 6.3%
i: î - 91.5%		ɔ - 13.3%
o: ō - 36.7%		
u: ū - 62.9%	û - 10.6%	
y: ÿ - 93.3%		

monosyllabic word, the *y* has a long *i* sound; in a polysyllabic word the *y* has a short *i* (long *e*) sound." An analysis of the data in the present study affirms that the vowel sound for a consonant + *y* in an accented open syllable is long *i*, and in an unaccented open syllable is short *i*. This suggests a partial confirmation of the above generalization, since all one-syllable words are in the accented category.

b. The most common phonemes for single-vowel graphemes in accented

A single-vowel in a closed syllable has its own short sound, except as modified by *r* (in the case of *a*, *e*, and *u*), or a *schwa* sound (in the case of *e*, *o*, and *u*). *Y* has a short *i* sound in a closed syllable (e.g., synonym).

b. The most common phonemes for single-vowel graphemes in accented closed syllables are as follows:

a: ä - 73.4%	ä - 11.3%
e: ě - 85.2%	
i: î - 86.9%	
o: ō - 65.0%	ô - 12.0%, ô - 9.5%
u: ū - 77.8%	û - 14.7%
y: ÿ - 96.7%	

The most common phonemes for single-vowel graphemes in unaccented closed syllables are as follows:

a:	ä - 82.7%
e:	ē - 42.2%, ě - 21.7%, ə - 16.5%
i:	ī - 98.0%
o:	ō - 73.0%, ȳ - 13.1%
u:	ū - 39.7%, ū - 33.3%, ō - 17.6%
y:	ī - 84.1%

Accent may serve as a cue in closed syllables for *e*, *o*, and *u*, since *schwa* sounds are found only in unaccented syllables. Accent is not a strong cue for *a* or *i*.

3. schwa sound

It may be interesting to note that *a* and *i* commonly represent a schwa sound in an open syllable, but not in a closed syllable. An *o* often represents a schwa sound in a closed syllable, but not in an open syllable.

Related findings—consonantizing of *y*, *i*, and *u*

Y served as a grapheme 2,095 times in the Hanna, et al material. It served as a vowel 2,041 times, and as a consonant 53 times, or 2.53 percent of the time. When it was a consonant, it was always the first letter in the syllable. Forty times it was the first letter of the word (yacht, yes); five times it was the first letter of the second root of a compound (barnyard). It always directly preceded a single or double vowel (buoyant, canyon) and at times followed a vowel pair. *Y*, of course, also occurs as part of several vowel-pair graphemes (ay, ey, oy, uy). In these cases it follows a single vowel. (See 3.)

I occurred as a single-vowel 7,498 times. But it also occurred 1,141 times in a consonant function. Sixty-six times it served as a single consonant grapheme, and 1,075 times as a part of a consonant grapheme, according to the Hanna, et al coding system. When it was coded as a consonant, it had a *y* sound and always preceded a vowel. It, therefore, might be consid-

ered by some to be part of a vowel-pair (alien, opinion, senior). The remaining times, when *i* was coded as part of a consonant grapheme, it also always directly preceded a vowel. In all but 16 of these cases it followed a *c*, *t*, or *s*, and usually (995 times) it helped to make the *sh* sound (facial, vicious, luscious, pension, mansion, diction, fiction, lotion). It also helped to make the *zh* sound 51 times (erosion, vision, fusion) and the *ch* sound 13 times (question).

U also served as a consonant (*w*—47 times), or as part of a consonant grapheme (*qu* = *k*—27 times; *qu* = *kw*—191 times; *cqu* = *kw*—5 times), for a total of 270 times, or 8.6 percent of the time that *u* was found in the Hanna listirgs. In each case, the *u* directly preceded a vowel (*u* = *w*: *suave, suite, jaguar*; *qu* = *k*: *bouquet, mosquito*; *qu* = *kw*: *quack, quail, queen*; *cqu* = *kw*: *acquire, acquit*).

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The Effect of Meaning on the Measurement of the Ability to Auditorially Discriminate Sounds Contained in Words*

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MANY IMPORTANT STUDIES made during the last forty years have examined the relationship between auditory discrimination and the skills of reading, spelling, and speech. Relatively few of these have concerned themselves with word meaning familiarity and its relationship to discrimination ability, which is a major purpose of this investigation. Some of the more pertinent studies are the following:

Monroe (12) initially explored the role of auditory discrimination in a large sampling of young school children. She used her own Diagnostic Reading Examination as a measure which includes a word discrimination test of 20 word pairs pronounced by the examiner and responded to as "same" or "different." Monroe concluded that lack of auditory acuity due to partial deafness, lack of precision in the discrimination of speech sounds, and of the temporal sequence of sounds may impede progress in reading. This was later verified by Schonell (16) and Vernon (19). In other studies, Bond (1), Kennedy (11), Ewers (6), and Johnson (9) all found positive re-

lationships between ability in auditory discrimination and reading ability.

Russell (14) compared the auditory abilities of 97 first, second, and third grade pupils with their achievement in spelling. Six tests of auditory discrimination were given. Russell concluded, "In general, the results suggest that rather complex auditory abilities involving sound recognition in various parts of a word are more closely related to spelling ability than is recognition of sounds of whole words as in "same," "different" or "rhyming tests."

Wepman (21) designed the Auditory Discrimination Test utilizing 40 pairs of like or unlike words equated for familiarity and length. He tested 145 children in the first three grades and found a positive correlation between auditory discrimination and intelligence.

In the area of speech discrimination tasks, Templin, in 1942, studied the sound discrimination ability of children in second through sixth grades using 200 items similar to those in the Travis-Rasmus Test (18). Vowels were not included. Later, Templin (17) shortened the test to 50 pairs of nonsense syllables for use with 120 subjects from six to eight years of age. Eight pairs were like and 42 were unlike. All of the sounds were consonants, consonant blends, or diphthongs. Among the findings were no statistically significant differences in the sound discrimination ability of boys and girls at any age level. Subjects from the upper socioeconomic status groups received higher sound discrimination scores than subjects from lower socioeconomic status groups at each age level, but these differences were not always statistically significant. Winitz (24), in a study of 150 five-year-old children, found no significant differences in language and articulation skills between males and females.

Some studies of auditory discrimina-

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tion indicate that there is a maturational factor related to the development of this ability. Watts (20) stated that the majority of children of six and one-half years are capable of differentiating between the sounds of short words which are nearly alike. Myklebust (13) suggested that full maturity of auditory ability occurs around seven years of age. A maturational factor in the development of auditory discrimination was explored by Schiefelbusch and Lindsey (15). They found second grade children superior over first grade children in discriminating rhymes, initial sounds, and final sounds. Bradford (2), in a study of spelling readiness among first and second grade pupils, concluded that the ability to discriminate speech sounds is a development skill. Wepman (22) tested 156 first and second grade children with the Wepman Auditory Discrimination Test, and stated that there is a developmental nature to the process of discrimination.

Christine and Christine (4) used the Wepman Auditory Discrimination Test with children who were good readers from grades one, two, and three; primary grade children reading below grade level; and a group of children with functional articulation difficulties. It was concluded that faulty auditory discrimination is a causative factor in both reading retardation and functional articulatory problems among children in the primary grades. Wilson (23) used the Wepman Test and compared auditory discrimination in 120 bright, average, and dull children ages six to nine whose IQ's ranged from 63-136. She concluded that brighter and older children are better in auditory discrimination than duller and younger children. Clark and Richard (5) assessed auditory discrimination ability in economically disadvantaged and nondisadvantaged preschool children using the Wepman Test. They concluded that preschool

economically disadvantaged children exhibit significant deficiencies in auditory discrimination ability when compared to a nondisadvantaged group. There appeared to be no relationship between sex and errors.

Hutton and Weaver (8) wondered whether word intelligibility were associated with word familiarity. The 15 least familiar and 15 most familiar words of the Phonetically Balanced W-22 list, Hirsch et al (7), were presented to a group of 53 public school children from kindergarten to twelfth grades. Words were pronounced at random by the examiner, the listener repeated the word, and the response was recorded. It was concluded that the meaning of a word, as seen in familiarity, does affect recognition as well as auditory discrimination. Budoff and Quinlan (3) tested 56 second grade children from nonprofessional homes. Meaningful stimulus words were presented visually and orally. It was concluded that the word pairs presented orally were learned sooner and more easily than the visually presented pairs. Katz (10) used the Wepman Auditory Discrimination Test with 72 normal and retarded readers in grades two, four, and six. The subjects were Negro males from lower socioeconomic backgrounds. English and Hebrew word pairs were used in both visual and auditory discrimination tasks. It was found that perceptual skills and stimulus familiarity factors play a role in children's visual and auditory discrimination performance.

From the foregoing studies, the following may be concluded:

1. Lack of auditory ability may impede progress in reading and be a causative factor in reading disability.

2. Faulty auditory discrimination is a causative factor in functional articulatory problems among children in the primary grades.

3. Auditory abilities of sounds in various parts of a word are more related to spelling than recognition of sounds of whole words.

4. There is a correlation between auditory discrimination and intelligence, with brighter children being better in auditory discrimination than duller children.

5. There is a developmental or maturational factor related to auditory discrimination skills.

6. There are no statistically significant differences in the sound discrimination ability of boys and girls.

7. Economically disadvantaged children exhibit more deficiencies in auditory discrimination ability than nondisadvantaged children.

8. The meaning of a word does affect recognition as well as auditory discrimination.

Description of instruments

Because of its widespread clinical use, the Wepman Test of Auditory Discrimination was chosen as a model for this study. The Wepman Test consists of 40 word pairs, equated for sound and length, selected and matched for familiarity from the Lorge-Thorndike *Teacher's Word Book of 30,000 Words* (1944). The test measures only the ability to discriminate accurately between word pairs, some of which are the "same" and some of which are "different." A test-retest reliability of $\pm .91$ ($N = 109$) was reported in the manual.

This study has replicated the same sounds as Wepman in both word pairs and nonsense word pairs. Because word familiarity was a major consideration, only words found in lists A, A, A, or below 20 rating were selected from Lorge-Thorndike's *Teacher's Word Book of 30,000 Words*. Thirty-seven word pairs were equated in sound and length with 37 nonsense word pairs, such as *rub-rug*, *juh-fug*, and *pass-path*, *dass dath*. Sounds were matched according to the maturational level at which a child learns the sound. For example, "d" and "h" are acquired at one age level, while "k" and "p" are acquired at a later age level in normal speech development. None of the nonsense word pairs were found in Webster's *New World Dictionary of the American Language* and, therefore, were considered to be nonmeaningful.

The word pairs and nonsense word pairs were recorded on separate tapes by a qualified speech therapist. Simple directions with three examples each of word and nonsense pairs were given, and the time between each test pair was equally spaced. The child was asked to respond verbally *same* or *different* to all the pairs.

Procedure

Since it had already been decided that it would be desirable to compare performances on the auditory discrimination instruments by sex, grade, and socioeconomic level, these were the major criteria which determined the population. First, schools which represented economically deprived and nondeprived populations were selected from a semirural school system in middle Tennessee. The criteria for judging the deprived and nondeprived populations consisted of the opinions of system supervisory personnel, and whether or not a school qualified for substantial funds under Title I of the Elementary and Secondary Education Act of 1966. Because of the size of first and second grade populations, it was necessary to select two deprived schools and one nondeprived. The next step was to randomly select fourteen pupils to represent each of the variables. Table 1 illustrates the resulting groups.

In order to examine the effects of order of presentation, a counterbalanced experimental procedure was used. Each of the groups were randomly divided into two groups of seven, and these groups were randomly assigned to differing orders of presentation. One group was given the words first, immediately followed by the nonsense words. The other group was given the nonsense words first, immediately followed by the words. In each instance, the stimulus was presented on identical audiotapes and responses recorded by a graduate

student who had been given special training in the procedure to be used in this study.

Results

Data were analyzed by an analysis of variance computer program. The program was designed to handle repeated measures on the same subjects.

The first analysis resulted in two significant main effects F ratios, grade (age) and words; and two significant side effects F ratio words/order, and words/age/order. The mean for number of responses correct on words and nonsense words combined for grade two children ($x = 31.4$) was significantly higher than for grade one children ($x = 28.7$). The mean number of correct responses on the words ($x = 31.8$) was significantly higher than the mean of correct responses on nonsense words ($x = 28.1$).

The first analysis of variance was followed by two simple analyses of variance. In the latter analysis, grade one and grade two were treated separately. As expected, the mean number of right responses on the words exceeded that on the nonsense words. Also, there was a significant interaction between words—nonsense and order of presentation.

In order to examine the significant interaction results, t tests were used. From Table I it is noted that in grade one all results were significant, except in the instance where words were given first and nonsense given second. One conclusion, then, is that order is a significant variable. In both relative comparisons the children performed in a superior fashion on the stimuli which were given second. Words-second were superior to words-first and nonsense-second were superior to nonsense-first. In general, however, the influence of the order of presentation variable was not strong enough to overcome the influence of the meaning

1) over the nonsense variable.

In all comparisons except one, the subjects responded correctly to more words than they did to nonsense words.

The results for second grade were not greatly different from those for first grade. Again, the subjects got higher scores on words than they did on the nonsense words. While the order variable showed a significant influence on the nonsense words, however, it was not significant for the words. It may be that there was insufficient ceiling on the word task, and that for this reason order had no significant effect on the subject's performance on the word tasks.

Table I. Results of t tests for Grade One

Comparison	Mean	t^*
Words—first	28.929	4.096
Words—second	32.214	
Nonsense—first	25.143	4.319
Nonsense—second	28.607	
Words—first	28.929	4.721
Nonsense—	25.143	
Words—second	22.214	4.498
Nonsense—second	25.607	
Words—first	28.929	.402
Nonsense—second	28.607	
Words—second	32.214	
Nonsense—first	25.143	8.817

* Using 50 df, the t value at the .01 level is 2.68 and at the .05 level is 2.01.

Conclusions

From these results, the following was concluded:

- 1 Second grade children performed better on this auditory discrimination task than did first grade children.
- 2 The meaningfulness of the stimulus greatly influences the auditory discrimination performance of the child. Thus, when one uses a pre- and post-auditory discrimination measure, a significant improvement might occur as a result of improved auditory discrimination or as a result of an expanded auditory vocabulary.
- 3 Sex was not a significant factor in this auditory discrimination task. Boys and girls performed equally well on the testing instruments.
- 4 The socioeconomic level of the two groups did not significantly influence their performance on this measure. In fact, the

nondeprived population had a mean score of only 1.2 correct responses higher than that of the deprived population. In light of other studies, this result is very surprising to the experimenters, and it is hoped this experiment will be replicated in order to confirm this unpredicted result.

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Utility of Vowel Digraph Generalizations in Grades One Through Six

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PHONIC GENERALIZATIONS have long played an important role in reading instruction in the elementary school. Numerous authors of textbooks in the teaching of reading recommend that phonic generalizations be included in the reading program, and most basal reading series include phonic generalizations in the instructional program. Of all the recommended phonic generalizations, possibly the generalization which is most widely known and most often taught is the vowel digraph generalization—the generalization commonly stated, "When two vowels are

side by side, usually the long sound of the first vowel is heard and the second vowel is silent," or, in many first and second grade classrooms, "When two vowels go walking, the first one does the talking."

Despite such wide and time-honored acceptance, little research on the usefulness of the vowel digraph generalization had been reported prior to 1963, when two studies, by Clymer (5), and Burrows and Lourie (4), were published. Clymer reported the results of an investigation of the utility of forty-five selected phonic generalizations in the primary grades, one of which was the vowel digraph generalization, and concluded that many generalizations were found to possess limited value. Special attention was directed by Clymer to the vowel digraph generalization, which was found to possess only forty five percent utility in that study. Burrows and Lourie (4) explored the reliability of only one phonic generalization, the vowel digraph rule, and found that only thirty-nine percent of the words investigated in that study followed the rule.

Recent studies on phonic generalizations by Bailey (2), Emans (6), and Burmeister (3) have also reported, without exception, failure of the vowel digraph generalization to be useful. Bailey reported findings of thirty-four percent utility, Emans, eighteen percent utility, and Burmeister categorized the generalization as one found to possess only limited usefulness.

Purposes. The purposes of the present study were to 1) investigate the overall utility of the vowel digraph generalization when applied to a list of words representative of words met by children in reading instruction in grades one through six, 2) determine the utility of all possible subgroups of adjacent vowels (*aa, ae, ai, ao, au, ea, ee, etc.*), and 3) explore the possibilities of evolving new vowel digraph generalizations that would apply to

large numbers of words and possess high percentages of utility.

Procedure. The vowel digraph generalization, ordinarily stated, "When two vowels are side by side, usually the long sound of the first vowel is heard and the second vowel is silent," was applied to a word list collected in a previous study by Bailey (1). The original word list consisted of the entire vocabularies of eight basal reading series, grades one through six, published in the United States during or since 1960, and was pronounced, for purposes of the present investigation, representative of words met by children in reading in grades one through six.

The vowel letters *a, e, i, o,* and *u* only were investigated, and *Webster's New Collegiate Dictionary* (7) was used as the dictionary of authority for the pronunciation and syllabic division of all words considered in the study. In every instance, only the first-listed pronunciation was recorded.

Percentage of utility for the original vowel digraph generalization was computed by dividing the total number of incidents which conformed to the generalization by the total number of incidents investigated. Likewise, percentages of utility for the twenty-five subgroups of adjacent vowel combinations were computed in the same manner.

Results. When the original vowel digraph generalization was applied to the list of 1506 words containing adjacent vowel incidents, 490 words conformed to the generalization and 1016 words were exceptions, resulting in an overall utility of only thirty-three percent. Table 1 presents the results.

Data obtained from the analysis of each of the twenty-five subgroups of adjacent vowel combinations are presented in Table 2. Only four subgroups were found to have a percentage of utility above fifty percent: *ai, ea, ee,* and *oa.* Frequency of occurrence in

Table 1

Utility of the Original Vowel Digraph Generalization*

<i>Number of Incidents Investigated</i>	<i>Number of Conformations</i>	<i>Number of Except. is</i>	<i>Percentage of Utility</i>
1506	490 (paint)**	1016 (been)*	33

* When two vowels are side by side, usually the long sound of the first vowel is heard and the second vowel is silent.

** Examples of words that conformed or were exceptions to the generalization

Table 2

Utility of the Vowel Digraph Generalization When Applied to Twenty-five Adjacent Vowel Combination

<i>Adjacent-Vowel Combinations</i>	<i>Number of Incidents Investigated</i>	<i>Number of Conformations</i>	<i>Number of Exceptions</i>	<i>Percentage of Utility</i>
aa	1	0	1 (bazaar)*	0
ae	1	0	1 (phaeton)	0
ai	118	84 (bait)*	34 (air)	71
ao	0	0	0	0
au	45	0	45 (caught)	0
ea	252	141 (peach)	111 (pear)	56
ee	166	145 (cheek)	21 (been)	87
ei	30	9 (ceiling)	21 (freight)	30
eo	13	1 (people)	12 (geography)	8
eu	4	0	4 (museum)	0
ia	45	0	45 (giant)	0
ie	86	6 (lie)	80 (friend)	7
ii	1	0	1 (taxiing)	0
io	178	0	178 (union)*	0
iu	7	0	7 (aquarium)	0
oa	66	63 (road)*	3 (cupboard)	95
oe	12	5 (toe)	7 (shoe)	42
oi	43	0	43 (boil)	0
oo	124	2 (door)	122 (cool)	2
ou	185	17 (four)	168 (fought)	9
ua	38	0	38 (equal)	0
ue	38	12 (continue)	26 (fuel)	32
ui	50	5 (nuisance)	45 (ruin)	10
uo	2	0	2 (buoy)	0
uu	1	0	1 (vacuum)	0
Totals 25	1506	490	1016	33

* Examples of words that conformed or were exceptions to the generalization

each of these four subgroups was considered sufficiently high to warrant further investigation.

In an attempt to determine the possibility of formulating new vowel digraph generalizations that would prove useful to children in grades one through six, two new generalizations were formulated and investigated. Examination of Table 3 reveals that a

generalization stated, "When two vowels are side by side, usually only one vowel sound is heard," was found to possess a high utility of ninety-two percent. The second newly formulated vowel digraph generalization, "When *ai*, *ea*, *ee*, or *oa* is found in a word, usually only the long sound of the first vowel is heard," was applicable to 602 words. Four hundred and thirty-three

Table 3
New Vowel Digraph Generalizations

New Generalizations	Number of Incidents Investigated	Number of Conformations	Number of Exceptions	Percentage of Utility
1. When two vowels are side by side, usually only one vowel sound is heard.	1506	1381 (juice)*	125 (idea)*	92
2. When <i>ai</i> , <i>ea</i> , <i>ee</i> , or <i>oa</i> is found in a word, usually only the long sound of the first vowel is heard.	602	433 (pail) (bead) (feel) (goat)	169 (pair) (steak) (been) (cupboard)	72

* Examples of words that conformed or were exceptions to the generalization.

words conformed to the generalization and 169 words were exceptions, yielding a percentage of utility of seventy-two percent.

Although no attempts were made in the present study to investigate the possibilities of rewording, restricting, or formulating new generalizations relative to adjacent vowel combinations that yielded low percentages of utility, it should be noted that Table 1 reveals the following adjacent vowel subgroups, with low percentages of utility and high frequencies of occurrence, that presented definite and consistent patterns in regard to exceptions: *au*, *ia*, *io*, *oi*, *oo*, *ou*, and *ua*. Hopefully, children should learn to recognize *oi* and *ou* as diphthongs and, thus, eliminate any need for applying vowel digraph generalizations when *oi* and *ou* are met in word analysis. Likewise, *oo* was found to usually have its own distinctive sounds, as in *foot* and *cool*, *au* nearly always had the sound of circumflex *o* (\acute{o}), as in *caught*, *io* was usually found in the phonograms *tion* and *sion* and then was pronounced as short *u*, as in *vacation* and *permission*, and when *ia* and *ua* were found within words, usually both vowel sounds were heard separately, as in *quant* and *actual*. Furthermore, results of the present study reveal that the value of vowel digraph generalizations would be greatly enhanced if elementary

school children also learn that vowel sounds are altered when followed by the letter *r*, as in *heard* and *fair*.

Conclusions

Children in grades one through six should gain help in word analysis if they understand that when two vowels are together in a word, only one vowel sound is usually recorded. The following generalization might well be the first developed by children regarding vowel digraphs, for it is basic and underlies other, more specific phonic generalizations: "When two vowels are side by side, usually only one vowel sound is heard."

Results of the present investigation indicate that the following, more specific phonic generalization should also prove useful to children in word analysis: "When *ai*, *ea*, *ee*, or *oa* is found in a word, usually only the long sound of the first vowel is heard."

The value of the newly formulated vowel digraph generalizations should be enhanced by affording children in the elementary grades the opportunities to learn that 1) *oi* and *ou* are diphthongs, 2) *oo* usually has its own distinctive sounds, 3) *au* nearly always has the same sound as *a* in *call* and *rat*, 4) *io* is usually found in the phonograms *tion* and *sion* and then is pronounced as short *u*, and 5) when *ia* and *ua* are found in words, usually

both vowel sounds are heard separately. Children should be aided also in word analysis by the knowledge that the sounds of vowel digraphs are usually affected by the consonants that follow, notably *r* following a vowel digraph.

Finally, cae should be taken to assist children in the development of flexibility in the use of all phonic generalizations.

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Learning to Recognize Words and Letters on a CAI Terminal

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A FEW YEARS AGO we began to explore the usefulness of an IBM 1050 AV computer terminal for studying initial reading instruction.* This is a report

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of three brief studies we carried out with four-year-old children in the course of our explorations. Our data concern sex differences in relation to differences in socioeconomic status and learning materials.

Equipment and materials

The 1050 AV looks externally like a typewriter on a desk and, in fact, can be used as a typewriter. It can send and receive information from the computer which can record, store, and transmit large amounts of information. In a CAI system, this information can be learning materials, student responses, and instructor's directions about how these should be arranged. The material in this case was a word or letter for each key, plus the directions to print that word or letter, and directions to the attached tape recorder and slide projector to play a certain section of the tape and show certain slides. The tape recorder and projector were inside the 1050, and the slide images appeared on a screen to the left of the keyboard.

The 1050, along with a chair for the child and a chair for the proctor, were the only furnishings used. The room was carpeted and had full length drapes on three walls. The fourth wall had two doors and a one-way mirror. The computer was at the Florida State University CAI center in Tallahassee, several hundred miles away. We were connected by telephone.

The system is arranged as follows: 1) input to the computer is typed on the 1050. 2) A signal called an EOB (end of block) is given the computer to receive this information and proceed as programmed—at this point the 1050 keyboard is locked and no more information can be put in. A light, the "proceed" light, is out during this state. 3) The computer then executes its instructions and any information or response programmed is typed out on

the 1050 and/or slides are shown and/or taped messages are played. 4) The proceed light comes on again and the 1050 is set to receive more information.

In our studies, the children initiated the sequence whenever they pressed or struck a key on the keyboard. The proctor then used a remote button to send the EOB signal, whereupon by direction of the computer 1) the word corresponding to the key struck appeared on the screen: in black and white print, 2) the tape recorder said the word twice, and then 3) a picture corresponding to the word was shown—if the word was not a concrete noun, an abstraction was shown (e.g., a green circle with a yellow dot in the center was used with the word *here*). When letters rather than words were used, the "pictures" were abstract designs built around the letters. The word or letter was also pasted on the key. Sessions so arranged were called exploration sessions. Table 1 shows this sequence of machine and pupil activities.

mission, and our carousel projector jammed often. Coupled with other breakdowns, the result was an ineffective learning environment. The fact that the children learned anything is evidence that this sort of machine system—as opposed to this particular one—is conducive to learning among four-year-old deprived children.

To measure learning, the program was changed so that first the tape recorder said a word and the projector showed the word. The child was told to find the key for that word. If he struck the correct key, the machine said he was correct, showed the picture of the word, and presented another word. If he pushed an incorrect key, the machine either did nothing, or said "try again" and repeated the word. It is from this matching or recognition task that most of our data came.

Usually the children came to the center in a small group of four to eight. During their first day they were shown the machine in a group, and each had a turn to make it work while the others watched. After this

Table 1
The Sequence of Events During a Child's Exploration of the Keyboard

Step	Event
1.	Child presses any exposed key.
2.	Proctor enters EOB.
3.	Proceed light goes off.
4.	Computer processes input and directs 1050 how to respond.
5.	Screen shows the word on the key that was pressed.
6.	Tape recorder says the word twice.
7.	Proceed light comes on.
8.	Sequence is repeated.

This sequence took from 5"-40" with a mode of about 15" which is just too slow for young children when both input and output are brief. Later, in learning when the material transmitted is more substantial, this delay would be much less important. We should add that working over a telephone produces problems, e.g., thunderstorms anywhere between the terminal and computer can spoil trans-

initial orientation, each child had a daily period of up to ten minutes to work the machine. Only the proctor sitting off and behind the child was in the room. The proctor said nothing. No child was required to do anything except leave the room after ten minutes. The children were free to leave early (but not return until the next day), to do a lot, to do a little, or to do nothing both during the exploration

sessions and during test times. Our general style of procedure was based on that of O. K. Moore (1954), although our machine was a bit different.

Experiment 1

The purpose of this experiment was to explore a machine variable that turned out to be irrelevant. In spite of this, some results of interest were obtained. On seven consecutive weekdays, 16 four- and five-year-old children (eight Negro girls, seven Negro boys, and one Caucasian boy) were brought from a day care center to the CAT center for about two hours in groups of eight (four boys and four girls). The financial criteria for enrollment in the day care center made it clear that these children came from disadvantaged backgrounds.

All but eleven keys of the keyboard were masked, as were all other features of the keyboard except the proceed light, which was greatly enlarged and placed directly behind and above the keys at eye level (even so, most

children ignored it at first). It was so arranged that each key represented a word, and the machine functioned as described above. The words used were *cat, an, type, yes, fish, girl, here, cat, no, boy, dog*.

The subjects followed a program of six exploratory sessions, with a maximum length of ten minutes. On the seventh day, after two minutes of exploration, the matching task was presented.

Results. Some children explored the keyboard vigorously, some made few attempts. Certain keys were struck more often than others. Table 2 shows the data for each subject ordered by score on the matching task. There is a clear difference in favor of the boys on matching (Mann-Whitney $U = 12$; $p < .02$). Both age and amount of activity during exploration are related to these scores ($\rho = 0.49$, $p < .05$ and $\rho = 0.47$, $p < .05$ respectively), but bear no very evident relation to each other ($\rho = 0.33$, $p > .05$).

Table 2
Results of Experiment 1

Subject Rank by Score	Sex	Age in Years	Activity Index	Test Score*
1	M	5.3	9.2	32.6
2	F	4.8	11.9	31.9
3	M	4.9	7.4	26.3
4	F	5.2	2.4	21.8
5	M	4.7	18.0	19.4
6	M	4.8	18.1	19.4
7	M	5.9	12.2	12.7
8	M	4.6	9.1	12.4
9	M	4.7	11.2	9.6
10	M	4.5	16.3	9.4
11	F	5.0	8.3	9.0
12	F	4.5	7.1	7.6
13	F	4.4	4.1	7.4
14	F	4.6	2.6	5.5
15	F	5.5	30.7	4.5
16	F	4.3	8.3	2.7
Mean	M	4.9	12.7	17.7
Mean	F	4.8	9.4	11.3
Mean	Total	4.9	11.1	14.5
Median	Total	4.8	10.2	11.0

* This score is based on number of trials to get the correct key. Up to eleven trials were allowed. The score indicates the amount of information represented by the successful trial for each letter modified to allow for chance successes.

The sex difference interested us because it favored the boys, who usually are the most disadvantaged in reading. We hypothesized that amount of activity was responsible, thinking perhaps the boys were really more active than the girls, although the difference was not significant. Age was not responsible, since the differences in favor of the boys were minute (and can be eliminated entirely by removing the boy ranking seventh in the group without changing the score difference).

Although our attention was still focused on other issues, our next study confirmed these results

Experiment 2

The subjects were 20 Negro children, 10 boys and 10 girls from a private day care center, the Nonprofit Day Care Center. The major purpose of the study was to check the procedural comparability and the feasibility of our operations with two sets of materials, words, or letters.

The five boys and five girls in group w were treated exactly as those in Experiment 1, except that 29 keys were exposed instead of 11. As before, each key was covered by a tab with a word printed on it. Group L, consisting of five boys and five girls, followed the same program except that each key represented a letter instead of a word. As Table 3, shows, most of the boys in both groups were older than the girls. The children were given a brief individual screening test to make sure that they were not already able to identify the words and letters.

The general procedures described previously were followed. There were 17 sessions in a six week period. Three of these were testing sessions: the seventh, the twelfth, and the seventeenth. The weekdays, during which the children did not have turns at the machine, were largely after the first test day. Since absences were frequent as well, their opportunities to

learn after the second week were very scattered and progress was slight. It was at this point that we concluded that the machine system would not serve our original purpose.

During the testing sessions the subjects were given only five trials on the matching task (in contrast to 11 in Experiment 1), before the proctor showed them the correct key. The rank scores obtained on the three tests show high correspondence ($W = .87$, $p < .01$), indicating substantial reliability of the measure, and making it reasonable to use a mean of these scores for each child. The latter step was necessary because the frequent absences would otherwise make our data too incomplete for analysis.

Results. The data confirm the previous result: boys score higher than girls. ($U = 9$, $p < .01$). These boys were also older than the girls, but an analysis of covariance controlling age led to rejection of the null hypothesis at $p < .05$). A comparison eliminating the five oldest boys and five youngest girls (which reverses the difference in mean ages of the remainder, making the girls older) still shows boys significantly better than girls on the matching task ($p < .05$). No differences between word and letter programs could be found. A 2×2 analysis of variance using sex and program as variables confirms these findings and showed the sex differences to be independent of program. The records also showed that the high scores were associated with longer average time per session (but *not* total time).

Experiment 3

To complete this work and interpret the data collected, it seemed desirable to try our materials with privileged children. Accordingly, eight boys and seven girls (the eighth girl quit after three sessions) were brought daily (more or less) for 11 sessions during a three and a half week period in the

Table 3
Results of Experiment 2

Subject Rank by Score	Program	Sex	Age in Years	Mean Minutes Per Session	Mean Test Score
1	L	M	5.2	10	46.3
2	W	M	4.8	10	36.9
3	L	M	3.8	10	22.1
4	L	F	4.1	10	21.9
5	W	M	4.1	6	21.9
6	L	M	4.7	10	21.1
7	L	M	4.5	10	16.1
8	L	M	4.5	10	14.5
9	W	F	4.4	10	6.8
10	W	F	3.7	10	6.7
11	L	F	3.8	4	5.5
12	W	F	4.1	6	5.3
13	W	M	5.3	10	4.3
14	W	F	3.6	7	3.7
15	L	F	3.4	7	2.3
16	W	M	4.5	4	2.2
17	W	F	5.1	10	2.2
18	W	M	5.1	5	1.3
19	L	F	3.5	2	1.2
20	L	F	3.9	3	0.0
Mean	W	M	4.8	7.0	13.3
Mean	W	F	4.2	8.6	4.9
Mean	L	M	4.5	10.0	24.0
Mean	L	F	3.7	5.2	6.2
Mean	W	Total	4.5	7.8	9.1
Mean	L	Total	4.1	7.6	15.1
Mean	Total	M	4.6	8.5	18.7
Mean	Total	F	4.0	6.9	5.6
Mean	Total	Total	4.3	7.7	12.1
Median	Total	Total	4.2	10.0	6.1

summer. They were brought individually by a parent and usually (when the system was working properly) stayed only a few minutes before or after their appointment. Testing took place on the eleventh day. In other respects the procedure was unchanged.

Results. Table 4 shows the results for these children. Even though the girls had a small age advantage, they did not do better than the boys; no sex differences were found. The letter program, however, was clearly easier for these children ($t = 3.49$, $p < .01$). This group of children spent less time per session than did the preceding groups; the average number of sessions attended was less than that for the April group (8 in contrast to 13), but the sessions were not as scattered.

The scores obtained seemed to be within a range similar to those of the

April study and so, for amusement, the data were combined in a $2 \times 2 \times 2$ analysis of variance. To keep matters simple (i.e., to keep numbers equal) a "score" equal to the group mean was added to the wf group. The program differences remained prominent, sex differences disappeared, and no sex or race differences were found. However, the program by sex and the sex by sex interactions approached standard levels of significance ($p < .10$).

Discussion

The analysis of variance just reported suggests the same things that a naive comparison of Experiments 2 and 3 suggests. It seems probable that the CAI system helps boys more than girls. Among the disadvantaged, boys did better than girls. In the middle-class group, the customary superiority

Table 4
Results of Experiment 3

Subject Rank by Score	Program	Sex	Age in Years	Mean Minutes Per Session	Test Score
1	L	M	4.8	10	45.6
2	L	F	4.5	10	44.5
3	L	F	4.0	9	37.3
4	L	M	3.8	6	22.3
5	L	F	4.5	5	18.2
6	L	M	3.2	9	17.8
7	W	F	4.2	8	13.9
8	L	M	3.8	10	12.8
9	W	M	4.2	4	11.9
10	W	M	3.8	6	9.0
11	W	F	4.2	4	8.7
12	L	F	4.2	8	8.2
13	W	F	3.8	10	4.8
14	W	M	3.8	6	4.4
15	W	M	3.4	6	2.6
Mean	W	M	3.8	5.5	7.0
Mean	W	F	4.1	7.3	9.1
Mean	L	M	3.9	8.8	24.6
Mean	L	F	4.3	8.0	27.0
Mean	W	Total	3.9	6.3	7.9
Mean	L	Total	4.1	8.4	25.8
Mean	Total	M	3.8	7.1	15.8
Mean	Total	F	4.2	7.7	19.4
Mean	Total	Total	4.0	7.4	17.6
Median	Total	Total	4.0	7.1	17.6

of girls disappeared. The interaction of sex and socioeconomic status indicates that this help is greater for disadvantaged boys than for privileged ones. Since even middle-class boys are somewhat disadvantaged in the primary grades in comparison to girls, we conclude that there are features of a CAI approach especially suited to disadvantaged children. We believe it has to do with chances to make gross motor responses in lieu of verbal ones.

Other interpretations are possible. For example, McNeill (1964) found that boys did better than girls "... after autoinstructional procedures that provided frequent and equal opportunities to respond and insured identical presentations of reading lessons to boys and girls (including words of praise)." Reading performances of these same children a year later in first grade classes reverted to the typical pattern of female superiority. McNeill rejected our sort of explanation in

favor of a differential teacher treatment hypothesis. That teachers favor girls seems unquestionable, but that does not explain a superior male performance with the machinery.

The program x SES interaction indicates that the results of the two studies were indeed different, and that the greater ease of matching letters than matching words is limited to the middle class group. From this we are happy to infer that some of the preconceptions we had when we started three years ago have some merit.

In the beginning of learning, words are visually more complex and harder to discriminate than letters; on the other hand, meaning aids retention. Among privileged children, this latter variable plays less of a role than among disadvantaged children, since the former learn early that letters are important and meaningful symbols. This, we believe, produced the difference in the relative difficulty of learn-

ing the two kinds of material. This may seem like a lot of inference for a little evidence, but that is the way pre-conceived notions work.

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The Effect of Two Different Orthographies on Beginning Reading

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DURING THE PAST DECADE our methods of teaching reading have been criticized by such people as Flesch in *Why Johnny Can't Read*, and Walcutt in *Tomorrow's Illiterates*. These individuals attribute the "poor reading achievement" of our children to the "word recognition" method. Without citing any statistical source, Walcutt estimated that three of four Americans were not reading as well as they should or could.

Arthur Trace (6), author of *What Ivan Knows that Johnny Doesn't*, presented views similar to those of Walcutt. He, also, offered no objective evidence. The assertion made in both books, that children in today's schools do not learn how to figure out unfamiliar words or words not taught in the basal reader, deserves attention. Both authors assume that the only words children can read are those found in basal readers. Trace recom-

mended the development of basal readers "that have three to five times the vocabulary and at least twice as much text as the typical reading series now has. . . ." Both authors suggested that the increase in vocabulary be accomplished by using the extreme type of phonic drill which they favor.

Studies have indicated that the greatest number of poor readers is found in the first grade, but that only a smaller number is found in the second grades. Ninety-nine percent of the first grade failures, ninety percent of the second grade failures, and seventy percent of third-grade failures are due to poor reading ability (3).

The National Council of Teachers of English estimates that four million elementary school pupils have reading disabilities.

The variety of material available for reading instruction indicates the numerous attempts to solve the difficulties children ordinarily have in achieving reading skill in the first grade. Each of these programs can be evaluated as an attempt to meet the motivation with which a child enters school—to learn to read and write.

While no single factor can be isolated and pointed to as the one which limits learning, current studies have shown the spelling of our language to be a significant factor.

Linguistic solutions recently developed have attempted to simplify beginning reading materials by using regularly spelled words to avoid the orthographic complexity of English. In the eyes of the linguist, a child can read when he can recognize sound-symbol correspondences to the point that he can respond to the marks with appropriate speech (5).

Others besides the linguists, however, have turned their attention to the beginner. The augmented Roman alphabet, produced by Sir James Pitman to be used as an Initial Teaching Medium, represents an effort to shape an

alphabet that has a symbol for each of the forty-four simple and complex consonant and vowel sounds of English.

The purpose of the study

The purpose of all basic writing systems is to provide a graphic code. When one has learned the code of the language signals and the code of the writing, one can then interpret written materials in terms of the language they represent. To read any writing efficiently, one must develop high speed recognition responses to the graphic signs as representations of significant language parts.

The purpose of this study was to determine if the Initial Teaching Alphabet, a more consistent medium for the teaching of reading, would result in superior success in word attack skills and comprehension when contrasted with the teaching of reading using the traditional orthography.

Design

Pupil selections. The design of the study provided for the inclusion of approximately 180 first grade children in the San Juan Unified School District, Sacramento County, California.

The first grade pupils were assigned to classes on the basis of an articulation card filled out by the kindergarten teacher at the end of the school year. The child's progress and his readiness for first grade were evaluated in the following way: 1) below average, 2) average, and 3) above average. The teacher also indicated whether the child could recognize and write his name, recognize colors, count objects to ten, handle scissors, cut and paste, and follow directions.

After the student cards were arranged according to the three classifications, the assignment was random, with the exception that a proportion of the groups falling in each of the three levels was assigned to each classroom. This method was used in all schools

involved in the study. The purpose was to insure that each classroom was heterogeneous with respect to readiness for formal reading instruction.

One of the first grade classes in each of the schools selected to take part in the study was then designated as the i.t.a. class. The i.t.a. groups were generally considered as representative of the total first grade enrollment in the district.

The sample consisted of an experimental group from two schools and two control groups matched according to sex, age (within four months), and intelligence (within four points). Control 1 was made up of children from the same two schools as the experimental group; control 2 consisted of children from two different schools in the same district. The latter group was included to study further the Hawthorne Effect on the achievement of the children, and knew nothing of the study comparing the progress of the children in i.t.a. and those using t.o. Eller (2) states that "less tangible bias may result from the differences in teacher and pupil enthusiasm if the experimenters know that they are participating in a new and different program while the controls go about their work as usual." Kerlinger (4) says that "if a learning study is being done, one or more control groups are essential. Almost any change, any extra attention and experimental manipulation or even the absence of manipulation . . . but the knowledge that a study is being done is enough to cause the subjects to change." Borg (1), in speaking of the Hawthorne Effect, said, "any situation in which the experimental conditions are such that the mere fact that the subject is participating in an experiment or is receiving special attention will tend to improve his performance. . . . The Hawthorne Effect decreases as the novelty of a new method wears off. Studies extending over two or three

years can be relied upon somewhat more in evaluating the effect of a new technique."

Preparation of teachers

The teachers who volunteered to use the Initial Teaching Alphabet as the medium for reading instruction in first grade classrooms attended a summer workshop and received two days of orientation. This consisted of an introduction to the rules for spelling with i.t.a., and training in writing the symbols. The workshops also included the viewing of a film, *The 40 Sounds of English*, and a review of the materials to be used—readers, workbooks, and teachers manuals.

During the school year a meeting, conducted by the investigator, was held once a month to discuss the progress of the experiment, problems arising in the classrooms; and to evoke a general sharing of ideas. The meetings were attended by all of the i.t.a. teachers, the second grade teachers who had been selected to take the class on during the following year, the principals of the schools involved, the reading consultant, and on several occasions, the teachers of the Control 1 classes.

It was recognized that the meetings of the i.t.a. teachers might increase the Hawthorne Effect in this group. Meetings were therefore also planned for the teachers of Control 1. Resource people were called in, e.g., representatives from Allyn Bacon; films and filmstrips were previewed, and the reading consultant made a presentation.

The teachers of Control 2 were given no special treatment. There were no special meetings set up for them. They did attend the grade level meetings held by the district however, as did all first grade teachers.

There were many visitors during the first year of the experiment. The study being conducted in the San

Juan Unified School District, was one of the first in the area. Consequently, teachers, administrators and educators came to observe. In order to make the teachers of Control 1 aware of the fact that they were also an important part of the experiment, an equal number of visitations were arranged if possible.

Preparation of parents

In late August of each year, a special meeting was held for all of the parents of first grade children in the two schools which had i.t.a. and Control 1 classes. At that time, the parents were made aware of the study being conducted. The film *The 40 Sounds of English* was shown. Material was distributed explaining the i.t.a. program as well as a copy of the symbols used. The teachers who had attended the i.t.a. workshop explained the program. A time was set aside for a question-and-answer period.

At the time of the meeting the class lists had not been posted. The parents were therefore unaware of their child's placement. They were told, however, that if their child was in an i.t.a. group and they would rather not have him in that class, they should notify the principal. Parents who desired having their child in the i.t.a. class were put on a waiting list. In the three years of the study, only one parent asked to have his child removed from the i.t.a. class, and many parents requested that their children be placed in the experimental group.

Pupil preparation

On the first day of school, the children in the i.t.a. classrooms were told that they were going to learn to read by using a special alphabet. This special alphabet had been designed to help them learn to read easier. When they could read very well using this special alphabet, then they would also be able to read in "grown-up" alphabet.

All labels and signs were written in i.t.a. It was recognized that the children would see the traditional alphabet elsewhere every day. At the beginning of the first year of the study, the number of library books written in i.t.a. were limited. Consequently, there were books on the library table or in the reading corner in the traditional alphabet. These were mainly for browsing. As more books became available in the special alphabet, they were put on display. Many old primers were prepared by the teachers for use in the reading corner by transliterating the material and pasting this over the original.

The study, being a longitudinal one, made provisions for collecting data for first grade children over a three year period, second grade children for two years, and third grade for one year.

Materials used

The following testing measurements were used: the SRA Primary Mental Abilities Test at the beginning of first grade, Gates Primary Reading Test at the end of the fifth and ninth months of first grade, Gates Advanced Reading Test at the end of the ninth month of second and third grades, Botel Phonics Mastery Test during the seventh month of first grade, Stanford Achievement Test-Primary Reading during the last two years of the study, 76 Word Dictated Spelling Test of regularly written words devised by the investigator during the eighth month of first, second and third grades, and the Stanford Spelling Achievement Test at the end of the third grade. The Botel Word Recognition test was administered to a subsample of the population on an individual basis by the investigator.

The reading tests, with the exception of the Stanford Primary Reading Tests, were given in the media in which the children were learning to read. After the transition to the tradi-

tional orthography was made, all tests were administered in t.o.

The experimental groups used the *Early-to-Read Series* by Mazurkiewicz and Tanyzer. Supplementary material consisted of the *Downing Readers*, a large selection of library books in i.t.a., and during the third year of the study, *The Books for Me to Read Series* by Ainsworth and Ridout and *The Nicky Books* by Doris Dickens.

The control groups used the *Ginn Basal Reader Series* (both readers and workbooks) supplemented by the *Allyn and Bacon Basal Reader Series*. They also had available to them a large number of library books in t.o. Both groups had access to a central school library, the County Schools Library, and the Curriculum Center of the District for additional materials in the traditional alphabet only.

Conclusions

Since the study was conducted over a period of three years, in reporting the findings the first year will be called Phase 1 (1964-65), the second year Phase 2 (1965-1966), and the third year Phase 3 (1966-67).

An attempt was made to answer the following questions.

Question 1. Is there a measurable difference in the reading ability of children being taught using i.t.a.?

The subtests used to measure reading achievement were Gates Reading Test—Word Recognition, Sentence Recognition, and Paragraph Recognition; and Stanford Reading Test—Word Reading and Paragraph Meaning.

The results were as follows: the three-year evaluation shows that girls in i.t.a. did advance more rapidly in reading and achieved significantly superior reading skills at an earlier time.

In contrasting the boys in i.t.a. with those learning to read using the traditional alphabet, it was not until the testing at the end of the year that there

was a significant difference in the reading achievement.

There was a significant difference in favor of the girls in the experimental group for all three years in Word Recognition. In the Paragraph Meaning subtests of the Gates and Stanford Reading Tests (used to measure comprehension), the results were significant on the Stanford Reading Tests. It should be remembered that this test was administered in the traditional orthography to all first grade children, whether they had made the transition or not.

During the first year of the study, the boys in the control group read equally as well as the boys in the experimental group at the end of five months instruction. The differences were significant in favor of the boys learning to read using i.t.a. in Word Recognition for the three years of the study, with the exception of February 1965 and May 1967 on the Gates Reading Test. On the Stanford Reading Tests, which was administered in t.o., the differences were significant in favor of the boys in i.t.a. in both testing periods (May 1966 and May 1967).

Results of the Botel Word Recognition Test, administered to a small subgroup, suggest that the experimental group was reading about one grade level ahead of the control group.

Question 2. Will the use of i.t.a. develop in the children a spelling "attitude" or skill superior to that of the children learning to read using the traditional alphabet?

The children in the experimental group developed superior skills (better described as encoding) in contrast to those of the control group. The significant superiority was first evident at the end of first grade when a test of regularly spelled words was given and maintained during the second and third grades. This significant superiority in spelling was also indicated by

the results of the standardized test given at the end of third grade, which consisted of words both regularly and irregularly written.

Question 3. Does i.t.a. develop superior phonic word-attack skills? These skills, as measured by the Botel Phonics Mastery Test, levels A and B, consisted of Consonant Sounds, Consonant Blends, Consonant Digraphs, Rhyming Words, Long and Short Vowels, and Other Vowel Sounds.

During all three phases of the study, the girls were significantly superior on all subtests of the Botel Phonics Mastery Test, with the exception of Rhyming Words in Phase 3. In this particular instance, the girls in the control group did equally as well as the experimental group.

During Phase 2, the boys in i.t.a. showed a significant difference in all areas of the test. For the other two years there was little consistency. The boys in the experimental group were significantly superior to the boys who had learned to read using t.o. in only the Vowel Sounds and Other Vowel Sounds subtest of the Phonics Mastery Test.

On the basis of the findings, it is evident that the children in i.t.a. do learn the sounds of the vowels at an earlier stage than those learning to read in t.o.

Question 4. It is assumed that first grade children lose some of their reading ability over the summer months. Does this assumption hold true for children learning to read using i.t.a., as well as those using t.o.?

The results of the retest of the Gates Primary Reading Test during the second week of second grade indicate that there was a loss in reading achievement over the summer months for all children in some subtests, and a gain in others for all three years of the study. In many instances the change, either up or down, was insignificant. The children in the experimental group dropped more often over the

summer months than did the children in the control group.

The girls in the control group consistently gained in achievement over the summer months. None of the differences were significant, however.

Question 5. Will the i.t.a. children at the end of the second and third grades retain their superiority in reading achievement?

The differences were only significant for the second grade girls in word-recognition, third grade boys in word-recognition, and third grade girls in comprehension.

Question 6. Which ability group will derive the most benefit from the use of i.t.a. as a media for learning to read?

The encoding and decoding achievement of the following groups was compared: a) upper third according to intelligence, b) middle third, and c) lower third. The range of intelligence in the upper third was from 109-127 IQ; the middle third from 103-112 IQ, and the lower third from 67-104 IQ, as measured by the SRA Primary Mental Abilities Test.

When looking at the data collected, it was found that in the first grade, the i.t.a. girls in both the upper-third and middle-third showed significantly superior progress in all subtests of the Gates Primary Reading Test. The i.t.a. girls in the lower-third made significantly more progress in word-recognition. The i.t.a. boys in the upper-third also made significantly superior progress in all subtests of the Gates Reading Test. There were no significant differences for the boys in the middle-third or lower-third in any of the subtests.

At the end of the second grade, the i.t.a. girls in the upper-third showed a significant difference in both word-recognition and comprehension subtests of the Gates Advanced Reading Test. There were no significant differences in either the middle-third or lower-third for the girls. The girls learning

to read using the traditional alphabet who fell in the lower-third of the group did make a higher score in comprehension, but the difference was not significant.

The boys in the middle-third showed significantly superior progress in word-recognition. No other significant differences occurred in any of the groups for the boys in second grade.

By the end of the third grade there were no significant differences for either the boys or girls, regardless of intelligence. Although the boys in the control group falling in the upper-third of the group did score higher in both subtests, the differences were not significant.

Question 7. Quite often in a first grade classroom, when pupils are grouped according to reading ability, one finds an over abundance of girls in the top group, and more boys in the slow groups. Is it possible that the use of i.t.a. will develop just as many good readers among the boys as among the girls?

In most instances, the girls were found to be superior in reading ability to boys in both treatment groups. The results indicate that when using i.t.a. the girls were the best readers. On the other hand, while the girls in the control group did appear to be better readers in Phase 1 and 2, the boys in the control group achieved more success in first grade reading in Phase 3. The results were not always consistent with the teacher's comments. Teachers indicated that they seemed to have a fewer number of boys reading in the slow group when using i.t.a. than they had previously experienced. In the third year of the study, of the first four children who made the transition to the traditional orthography, three were boys. It is difficult to make generalizations from the data collected because there are many factors involved, such as age, readiness, language experience, and fami^l back-

ground. According to the test results, however, it would be assumed that the girls in both treatment groups were better readers at the end of first grade.

Question 8. Does the so-called "Hawthorne Effect" produce superior results due to teacher-pupil enthusiasm for method used, and what relation exists between this effect and the length of the study?

Several controls were built in to the study to take care of the Hawthorne Effect: a) the duration of the study and b) use of a second control group in school not involved in the study.

It was noted that in all of the tests administered to the first grade children in the first year of the study in which a second control was used, the scores of Control 1 were consistently superior to those of Control 2. Not only were the differences superior, they were significantly superior in favor of the control group within the same schools as the experimental group. The results show that the matched group from the schools in which i.t.a. was being used achieved more success during the first year of the study than did the group of children which came from two schools who knew nothing of the experiment and had gone about learning to read just as they had done in the past.

Borg states that the Hawthorne Effect decreases as novelty of a new method wears off. The results of the testing program during the remainder of the study confirmed this statement. In looking at the data, it was evident that the mean differences were much less in the second year. There were very few significantly different scores. There were several scores which indicated a superiority for the second control, but they were not significant.

Implications of the study

The Initial Teaching Alphabet is not a panacea. While the findings of the study show that i.t.a. has brought some

children an important advantage in their learning to read, it does not show it to be a cure-all for all of their reading problems. Needless to say, there were still children who made a poor response when i.t.a. materials were used.

Since many of the traditional second grade words included in the spelling program were regularly written, many of the children who had learned to read using i.t.a. had the ability to encode them. The focus, therefore, was on the study of spelling patterns and development of phonic and structural analysis skills as part of the spelling program.

This study has shown that the i.t.a. children do score significantly better in many of the decoding and encoding tests and their subtests in grades 1 through 3. It also has shown that the i.t.a. children do not score significantly less superior on these same measures.

In conclusion, this study has shown that first grade children make more progress in beginning reading (decoding) when using a more consistent and phonemically regular alphabet, such as i.t.a. The results of the Botel Word Recognition Tests suggest that they were reading one grade level higher than first grade children who had learned to read using the traditional orthography. As the children progressed through the second and third grades, the differences in the achievement between the experimental and control group narrowed and became less significant. By the time the children were tested at the end of third grade, the boys and girls who had learned to read using i.t.a. did not differ significantly in reading achievement from those in the control group, although several mean differences favored the former group.

Regardless of which media was used for teaching beginning reading, the girls made more progress in first

grade. Surprisingly enough, the children who gained the most benefit from i.t.a. (those from the upper-third of the group according to intelligence) would probably have learned to read using any media or method. This is not to say, however, that they have not gained or benefitted from the use of i.t.a. The Initial Teaching Alphabet gave them a headstart; they read much earlier; they moved ahead faster; reading skills were introduced much earlier; and they were able to read much more widely.

Results of the Botel Phonics Mastery Test indicate that children learning to read using i.t.a. learned the sounds of the vowels much sooner.

In spelling (encoding) the children in i.t.a. were significantly superior in first grade when writing regularly spelled words and continued to be significantly superior in the third-grade on a standardized test.

The "t" test was used to determine significant differences of means. Reliability of the 76 Word Dictated Spelling Test devised by the investigator was determined by use of the Spearman-Brown Prophecy Formula. $r_t = .98$.

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Self-Concept Gain Scores and Reading Efficiency Terminal Ratios as a Function of Specialized Reading Instruction or Personal Interaction

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THERE SEEMS TO BE a general acceptance throughout existing literature that there is a relationship between self-concept and achievement in the educational setting (4, 5, 6, 7). Reading achievement is no exception (9, 10, 12). Through research, it has been found that varieties of methods of therapeutic and/or instructional situations help the students to make gains in self-concept and/or reading ability (1, 2, 3, 8, 11). Significant others, teachers and parents particularly, have been found to play an important role in the development of the psychological security, which in turn aided in more positive academic achievement.

The rather common remedial reading situation was used as the educational organization around which to develop this study. The fact that generalizations may be found which could relate to classroom situations should not be overlooked.

Subjects. The subjects for this study were eighty-five fourth, fifth, and sixth grade boys of average intelligence who were underachieving readers.

Purpose. The purpose of the study was to investigate the impact which specialized reading instruction or personal interaction had upon the subjects' reading efficiency ratios and their self-concept scores.

Procedure. Selection of subjects was based upon scores received on the Gates Reading Survey and the Lorge-Thorndike Non-Verbal Intelligence Test. Further testing was done with

the California Test of Personality, The Spaulding Self-Concept Inventory and an informal reading inventory.

The subjects were placed in one of three different groups: reading instruction, personal interaction, or control. The reading instruction and personal interaction groups each met for a total of twenty-five, one-half hour experimental sessions which occurred over a period of time from January 31 until May 4.

The reading instruction group received instruction which was planned for individuals' specific needs as identified by the formal and informal testing and daily observations. Emphasis was placed upon the sequential development of abilities with particular stress placed upon the pupils' attaining success. The climate of the sessions was planned to be challenging, yet reassuring. Experience stories, basal readers, text books for content classes, and instructor-prepared materials were used.

The personal interaction group received no instruction, but participated in pupil-teacher planned activities. Examples of such activities included discussions, playing bingo and other games, drawing, telling stories, jokes and riddles, role playing, and tape recording. The instructor was an aide, a resource person, and a participant in an activity when needed. She tried to help to develop an accepting atmosphere by being a supportive, helpful, pleasant, positive person.

Subjects who were members of the control group attended their regular classes. They had no personal contact with the investigator. The instruction which they received in the classroom was dependent upon the program developed by the individual teachers. Basal series with accompanying workbooks were available to them. All of the students in the three schools had the opportunity to go to the libraries in their buildings once during each week.

Post-testing included the adminis-

tration of all of the previously mentioned tests, except the intelligence test.

Statistical procedures. Multiple linear regression analyses were used to examine the relationship that existed between methods of instruction, pretest reading efficiency ratios, pretest self-concept scores, and criterion variables (terminal reading efficiency ratios and post-test self-concept scores).

Results. There was a constant level of difference in methods of instruction over the observed range of the informal reading inventory pretest reading efficiency ratios. Gains were made with all methods of instruction. The reading instruction method was a superior method of instruction for this sample when the analysis was based upon the informal reading inventory.

There was a significant interaction among the methods of instruction and the Spaulding Self Concept Inventory pretest scores. The reading instruction method was a superior method of instruction for almost everyone when the analysis was based upon the Spaulding Self Concept Inventory. The personal interaction method was a superior method for a few who had low pretest Spaulding Self Concept Inventory scores. The control method was a superior method for a few who had high pretest Spaulding Self Concept Inventory scores.

There were no significant relationships over the observed range of interest for the Gates Reading Survey pretest reading efficiency ratios and the California Test of Personality pretest scores.

Implications. Schools which are developing new programs or improving existing programs would probably like to consider using some of these same techniques for their regular classroom settings, as well as for their remedial situations. The learning situation which is geared toward the individual's needs has more potential for develop-

ing into a successful experience. These successful experiences seem to result in improved reading ability and appear to positively affect the self-concepts of the majority of students.

It was found in this study that the boys responded positively at all times to the reading instruction which had been prepared for them. Two of the guidelines for the construction of the material may have been the major reasons for this attitude. The material was developed specifically for their needs and presented at a level which would insure success. The skills which were taught were reviewed to help reinforce the learning and establish retention of the material. It did not seem difficult for the subjects to become interested in the reading material. Stories were chosen according to their expressed interests and actual identification of a story they would like to read.

It seems possible that our schools could quite easily apply some of these same considerations in larger group situations. Of course, it necessitates knowing the students' needs and abilities. Successful experiences should not be impossibilities for those who are underachievers in our schools.

Successful experiences need not all be academic in nature. The subjects in this study who were members of the personal interaction group had predominantly successful experiences (someone had to lose the checkers and bingo games). They changed visibly while they were making the tape recordings. At first they feared recording and giggled when listening to themselves. Then they decided to record "something." Many rerecordings were made of each program they developed. They never seemed to tire of doing it "just one more time" to make sure it was perfect. They listened to their finished products with pride showing on their faces. One group actually exhibited fear when listening

to its own recording of "Combat" with sound effects. From this seemingly meaningless method of working with these subjects, it is interesting to see how much it appeared to affect the self-concepts of those who had exhibited very low initial self-concept scores.

Did these subjects with low self-concepts not receive positive experiences in the average classroom? Were they unable to experience the freedom they felt in the personal interaction sessions? There must have been some kind of threatening feelings to have their self-concept scores decrease when they remained in the classroom. Those subjects with the high self-concepts did not seem to be affected in the same manner in the experimental situation. They seemed to be affected negatively by being taken out of the classroom. Who knows what operated here? They may have become insecure just wondering why they were selected for the experiment. The classroom teacher may want to look more closely at those children who have the need for developing better self-concepts and consider just how he may best help to foster this growth. He may also want to consider those who have a high self-concept, and identify that which helps to support it.

It is interesting to note that specialized reading instruction seemed to provide experiences which aided in increasing both reading efficiency ratios and the majority of self-concept scores for the subjects included in this study. It would be nice if this were all we needed to do to aid the underachieving reader to succeed academically and attain some more positive elements of self-esteem.

A replication of this study on a much larger scale, in several communities, may give us some interesting insight into the effect which learning situations have upon students' self-concepts and reading abilities. It would

seem to be of value to do further research to investigate the impact which a specialized reading program and personal interaction activities may have upon the self-concepts and reading abilities of a total school population.

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Oral Reading Errors of Intermediate Grade Children at Their Independent, Instructional, and Frustration Reading Levels

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IN THE EARLY HISTORY of this country, oral reading was a necessity. Reading materials were scarce, and illiteracy was common. Consequently, the illiterates were dependent on the few who could read aloud. This was the situation for both secular and religious needs. As a consequence, expressive oral reading and an elocutionary type of delivery were stressed in reading instruction.

Oral reading has become less necessary and, therefore, has received less emphasis as reading materials became more accessible and as research has indicated the need for more silent reading.

Society today requires oral reading for various kinds of purposes. In mass media communication, news commentators, entertainers, and announcers read aloud. Statesmen, candidates for public office, and civic leaders read speeches. Our personal lives show the use of oral reading in sharing a book or story aloud to family or friends, reading a portion of an article to prove a point, reading poetry aloud, and reading messages over the telephone. Recognized authorities in the field of reading have indicated that an important objective in reading instruction is developing the ability to read aloud to an audience of one or more persons to inform or entertain them.

Other leaders have recommended that oral reading be used for diagnostic purposes. Several kinds of information can be gathered by listening to a child read aloud, without having previously read the material. Important

clues about the reader's competence in word identification and recognition, in his use of voice intonation patterns, and whether the child is reading at his instructional level can be gathered.

Need for the study

Both society and the school have a need for good oral reading. Society requires reading aloud for informational as well as for entertainment purposes. The school uses oral reading in the same manner as society, but in addition, can use oral reading for determining reading levels, and for diagnostic purposes.

Studies done in recent years have indicated that group standardized reading achievement test scores tend to place pupils at a readability level well above the one at which they can function. A review of the literature on the kinds of oral reading errors reveals little conclusive information.

At the time this study was conducted, no research had been done to determine the kinds of oral reading errors children make at the independent, the instructional, and the frustration reading levels, nor to determine if any differences exist in the frequencies with which the kinds of errors occur among the three reading levels.

Definition of reading levels

1. Independent reading level—the highest oral reading level at which the pupil achieves 98-99 percent accuracy in pronunciation of words and/or 90 percent comprehension.
2. Instructional reading level—the highest oral reading level at which the pupil achieves 95 percent accuracy in pronunciation of words and/or 75 percent comprehension.
3. Frustration reading level—the lowest level of readability at which the pupil achieves less than 95 percent accuracy in pronunciation of words and/or 50 percent or less comprehension.

Oral reading errors

An examination of the literature on oral reading provides little conclusive evidence on what constitutes an error

in oral reading. The research done in the area has not clarified the problem. Some writers include poor phrasing as an error, whereas others do not. Poor phrasing, it would seem, refers more to the quality of the oral reading than as a reading error. Wrong beginnings, wrong middles, and wrong endings of words are also listed as errors. These kinds of mistakes, however, can result in substitution errors. Consequently, clarification of a definition of kinds of errors is in order.

Turning to the writers of four commonly used oral reading diagnostic tests, one finds greater agreement on what constitutes an oral reading error. At least three of the four test writers agreed on the errors in this study, with the exception of reversals. Two of the tests included that kind of error.

For the purposes of this study, the following kinds of errors were selected.

1. Omission—the leaving out of a prefix, suffix, inflectional ending, word, punctuation mark, or a group of words in sequence.
2. Substitution—the reading of one word for another. Two words in reversed sequence were counted as two substitution errors. One word substituted for two words were counted as one error.
3. Additions—the insertion of a prefix, suffix, inflectional ending, word, punctuation mark, or a group of words in sequence.
4. Refusal—the inability of the pupil to read a word, within five seconds, making it necessary for the examiner to provide the word.
5. Repetition—the repeating of two or more words.
6. Reversal—the mispronunciation of a word, using the final letter in the initial position (saw for was).
7. Gross mispronunciation—the pronunciation of a word in a manner that makes it unintelligible.

Hypotheses tested

In analyzing the results of an informal reading inventory, the following null hypotheses were tested: 1) that there would not be a significant difference among the frequencies of the various kinds of oral reading errors made at the three reading levels, 2) that

there would not be a significant difference among the frequencies of the various kinds of reading errors made at the three reading levels by sex, 3) that there would not be a significant difference among the frequencies of oral reading errors made at the three reading levels by children in the three grade levels, 4) that there would not be a significant difference among the frequencies of errors made in the initial, the medial, and the final position of words and total word errors at the three reading levels, and 5) there would not be a significant difference among the frequencies of oral reading errors among each of the eight principal parts of speech at the three reading levels.

Procedures

An informal reading inventory constructed from paragraphs contained in a basal reading series was administered to the subjects in this study. The subjects used were twenty-two pupils in grade 4, twenty-one pupils in grade 5, and twenty-five pupils in grade 6. An uneven number of pupils resulted because the clinicians who gathered the data didn't have some pupils read at all three reading levels.

While administering the informal reading inventory, the oral reading of each pupil was recorded on tape. The researcher and a reading clinician scored the oral reading paragraphs separately. In comparing results, the tape was replayed for clarification when necessary.

In analyzing the data, errors were classified at each reading level. The occurrence of errors in the initial, medial, and final positions of words at each reading level was tabulated for substitutions, mispronunciations and omissions, at the ends of words. The occurrence of oral reading errors among the eight principal parts of speech at each reading level was tabulated.

The chi square-test of independence

was used to determine whether or not the frequencies of kinds of errors at each of the various levels were significantly greater than at each of the other levels. The 5 percent level of confidence was used.

Interpretation of results

In analyzing the data, it was found that boys and girls in grades 4, 5, and 6 made each of the kinds of oral reading errors, except reversals, at the independent, the instructional, and the frustration reading levels. Further analysis revealed, however, that certain kinds of errors occurred with greater frequency at one reading level than at another.

The hypothesis which stated there would not be a significant difference among the frequencies of the various kinds of oral reading errors at the three reading levels was rejected. Repetition errors occurred with greater frequency at the independent reading level, whereas mispronunciation, refusal, and substitution errors occurred with greater frequency at the frustration reading level. The greater frequency of repetition errors may result when word recognition difficulties are minimal, the eye-voice span becomes too great, and a regression becomes necessary to help correct the situation. In some instances, the regression could be too great and a few words would be repeated. A higher frequency of mispronunciation errors at the frustration reading level would indicate that the reader lacks sufficient word identification and recognition skill to figure out the pronunciation of the word.

The hypothesis which stated that there would not be a significant difference among the frequencies of the various kinds of oral reading errors made at the three reading levels by boys and by girls was accepted at the independent and instructional reading levels, but rejected at the frustration reading

level. Boys made a greater proportion of substitution errors at the frustration reading level than girls did. Girls made proportionately more refusal errors at the frustration level. This was attributed to the observation that boys are usually more aggressive than girls and would therefore be more likely to push ahead in reading, whether or not they are correct. Girls, being more reluctant to make errors, would tend to give up on a word and require help.

The hypothesis which stated there would not be a significant difference among the frequencies of oral reading errors made at the three reading levels by pupils in the various levels was accepted at the independent and frustration reading levels. There was a significant difference in the frequency of kinds of oral reading errors in comparing errors at the instructional level for grade 5 and grade 6. The data in this study did not provide any explanation for this difference.

The hypothesis which stated that there would not be a significant difference in the frequencies of errors made in the initial, medial, and final positions in words and total word errors at the three reading levels was accepted in all cases, except when comparing the instructional with the frustration level. In comparing the frequency of errors at these levels, errors made in the medial position of words occurred with greater frequency at the frustration level. A probable explanation for this finding is that as the reading material becomes more difficult to the reader, his use of context clues and/or vowel sounds is not effective. The reader uses words which begin and end correctly, but because he is not using context and/or vowel sounds effectively, the middle of the word is wrong.

The hypothesis which stated that there would not be a significant difference in the frequencies of oral reading

errors among the eight principal parts of speech was rejected. Noun errors were made with greater frequency at the instructional and frustration reading levels. Pronoun and conjunction errors occurred with greater frequency at the independent reading level. The higher proportion of noun errors at the frustration reading level may also affect comprehension because of missing key words.

Implications and conclusions

Other writers have indicated that in a number of cases, classroom teachers are not sensitive to the frustration reading level of pupils. The findings of this study suggest that certain kinds of errors occur with greater frequency at the frustration reading level than at any other reading levels. There seems to be a need for undergraduate and graduate reading methods classes to include more training in the use of oral reading as a diagnostic tool. Public school curriculum personnel working in the area of reading instruction might also include more in-service training in the use of oral reading for diagnosis in curriculum improvement programs.

It is recommended that further research comparing the kinds of oral reading errors at the three reading levels be made at the primary and secondary levels. Further research might also be done using graded social studies and science reading materials.

Spatial Dimensions in Reading Comprehension

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WE HAVE BEEN WORKING FOR SOME TIME on the relationship between di-

mensions of affect and cognition in reading comprehension (3, 9, 10). Our studies have been based on the assumption that "thinking" and "feeling" are not two distinct and independent dimensions in meaning, but can be identified as parallel processes in which cognition (thinking, symbolizing, reasoning) forms one dimension, and affect (feeling, attitudes, interests, fantasies, emotion) occupies another dimension. In reading any selection, both channels are mobilized to effect the mature reader's "comprehension." Depending, however, on the nature of the message received as well as certain predisposing factors, e.g., personality structure, set, etc., either one of the channels will exert greater influence on that which is "understood" or interpreted. A major concern has been to examine whether particular cognitive and affective variables belong in the same system of meaningful relationships.

In our earliest study, the undergraduate reader's self-concept and personality behavior were found to be predictive of the general semantic meaning that the reader attributed to the protagonist in a select reading passage (3).

Although reading achievement has been typically measured by a paper and pencil test, the Davis Reading Test (2) did not appear to be in the same system of relationships with the affect variables. The self-concept of the reader and the concept of the protagonist have been measured in our studies by bipolar adjectives frequently used in research with the semantic differential [sd] (4, 5). Personality behavior has been inferred from either the primary or secondary factors emerging from the analysis of scores on the Sixteen Personality Factor Questionnaire (16 PF). Semantic meaning of the main character was found to be significantly influenced by the reader's own personality and concept of self. It was observed that the

ratings of protagonists were predictable from the characteristics of the high anxious reader, but the relatively low anxious student did not seem to relate his own pattern of behavior to that of the protagonist. Characteristics of extroversion as well as introversion were found to be significant predictors of semantic meaning that readers attributed to protagonists in the criterion story.

Cognitive variables in several of our reading studies have been identified by the cloze procedure (6, 8), the Modern Language Aptitude Test [MLAT] (2) scores, and the Davis Reading Test (2). Various methods in the cloze procedures which we applied, i.e., pre-cloze, post-cloze, lexical cloze, and affective cloze, did not appear in a single system of relationships with those affect measures represented by the semantic differential and the 16-PF. A few binary relationships between the cloze procedure and the sd factors of "activity" and "potency" were observed; but a relatively small amount (20 percent) of the total variance of cognitive variables was determined by the affective components.

In one study where the data was analyzed by a step-wise regression analysis, subtests 1 and 2 of the MLAT were the first variables to emerge when the Davis Reading test, cloze tests, semantic differential ratings for self and protagonists, and the second-order factors of the 16-PF were correlated. The MLAT 1 and 2 subtests were most closely related to the activity dimensions of judgments of self on the sd, the Davis Reading test, the evaluation dimension of judgments of protagonist on the sd; and the MLAT subtest 3 and 4.

The MLAT is an instrument with five subtests which attempts to predict foreign language learning potential. The subtests were developed by factor analytic methods, and attempts made to keep intercorrelations to a minimum. Intercorrelations are high enough,

however, to result in most of the test loading on the same factor when all subtests of the MLAT are included in the analysis.

Most of the subtests seem to be measurements of rote memory processes. The one test which tends to separate in the factor structure when the MLAT is analyzed along with other cognitive tests is subtest 4, Words in Sentences, which seems to be primarily a usage test. The MLAT, typically, has moderate correlations (.30—.50) with tests of vocabulary, reading comprehension and cloze.

Recently, we have attempted a replication of our initial work, hypothesizing that post-cloze reading scores on a select reading passage would be predictable from the three general semantic factors rating "self" and "protagonist" as well as personality indices (9). Subjects in this study were 162 undergraduate students enrolled in a junior level course in Educational Psychology. Each of the students was asked to read a passage entitled, "I Starved for Science" (7). The four page story described the reactions of a man who has volunteered to live on a sub-standard caloric diet. Writing in the first person, the protagonist related how he was one of 36 men who volunteered to starve for six months so that science might better understand what happens to a starving person.

Each student rated the concepts of self and protagonist on 12 semantic scales that we have used in previous studies. Personality of each student was assessed by the self report responses of the 16 PF. Post-cloze and pre-cloze scores were based on the fifth word among the total number of nouns, adjectives, and verbs in the passage.

Results indicated that the semantic differential continues to be a stable instrument in rating concepts of self and protagonist. About 56 percent of the variance was identified by the evalua-

tive, potency, and activity dimensions from a factor analysis of responses on the protagonist. Only two factors emerged, contributing 62 percent of the cumulative variance, when the reader's rated themselves. When a step-wise regression analysis was applied to post-cloze scores, the pre-cloze scores, Factor 2 (potency) of the self measures, and the second order personality factor of independence-dependence contributed significant relationships to those post-cloze scores. Pre-cloze scores were not found to be predictable from measures in this study.

In a yet unpublished study, we have found that as subjects are given more information on which to base their ratings of a protagonist, variance in scores based on those affect judgments of the reader seemed to decrease. Furthermore, as time elapses (e.g., two weeks), there is an increase in the idiosyncrasies in the perception of the protagonist, reverting to the pre-reading situation in which there was minimal information.

These data and other studies which we have examined have led us to draw up some preliminary hypotheses and perhaps even suggest a rudimentary model which might be helpful in describing or clarifying complex phenomena in the reading process.

The mature reader approaches the beginning of a reading passage with a relatively strong cognitive set. He has learned to think about reading as an information gaining task, and has developed habits of reading for information, maintaining a system of controls over emotion. In almost all classroom behavior, the reader has been conditioned to search out factual details in reading selections. As information is provided in the passage, his psychophysical system becomes operant in a somewhat different manner. The patterns of interaction between cognitive and affective dimensions begin to form and change as he responds to the con-

tent, and the words and patterns of words in the passage are processed in the organism at a speed and in modes that have become idiosyncratic to the reader. This particular swarm of words interacts with a warehouse of prior emotional conditioning to words, symbols, and sounds of past experience. As the mature reader continues to perceive more words and patterns, information is added and the emotions experience some degree of arousal. Generally, the reader continues to read the entire passage, processing a large amount of information with very little emotional arousal.

One might think of such a reader as having a wide range of vocabulary and many verbal associations, who consistently looks for abstract, reasoning dimensions while reading a passage. In reading any selection, both channels are mobilized to effect the mature reader's "comprehension." Depending, however, on the nature of the message received as well as certain predisposing factors, e.g., personality structure or set, either one of the channels will exert greater influence on that which is "understood" or interpreted. In contrast, another reader might well be so aroused in reading the same passage because of mediating emotional involvement, that information, thinking, logic, and highly abstract conceptualizing is almost totally impeded.

A third reader might respond to the reading passage by relative shifts between the dimensions. In this case, the affect and rational channels may cause some distortion to the "content" either because the reader fails to cognitively handle certain facts or because significant detail is distorted or impeded during the input process. In the case of most reading behavior, we think that the typical reader may evidence behavior similar to that of our third example. There is constant shifting between the cognitive and affective dimensions, and the intensity

of each mode in the reading process results in the particular meaning that an individual obtains in reading the select passage.

It should be recognized that there are certain reading selections that are highly stimulating in affect, e.g., pornography. When we are talking about critical reading, the reader is generally taught to be restrictive in the information gathering task. Propaganda or pornographic literature appear to be directed to arousing emotions without a high cognitive content. In all reading behavior, we believe that the reader's response to previously input stimuli, in turn function as stimuli which interact with the words (and with their semantic and content qualities) which are currently being read. A sort of chaining effect is therefore evidenced.

We have been hypothesizing that the reader continues to process incoming data and tends to define specific targets in a semantic space. In passages with protagonists and antagonists, the reader begins to change as he perceives the spatial semantic difference between the main characters of the story and himself.

As the reader continues to perceive or read more words, and information is added, a large number of associations are processed, and the reader brings together, or integrates, the varied and extensive data. The integration of material is accompanied by a noticeable feeling of safety. The feeling of safety becomes very pronounced if the reader can place in semantic space the description of the protagonist as well as the other concepts in the story. The mental plotting of these concepts permits comparisons to be made with the distances between concepts and the reader. A distance between love objects as well as vectors from the reader to the perceived objects are measurable by multidimensional scaling techniques. It is in

these spatial distance vectors that we believe the reader identifies with the hero or heroine in particular stories. The feeling of safety that results from conceptualizing spatial relationships is more than a simple reduction of anxiety. Anxiety is involved, but is more likely the by-product of the association of new information in the passage with the reader's past experiences. Perhaps that is why we have been able to measure high anxiety effects in reading exercises, whereas low anxiety levels do not provoke threat to ego functioning and are difficult to measure. Of course, we should note that many readers come to a reading event with minimal levels of motivation. They "turn off" the information processing mechanism and adopt a "cheap economy" in the involvement of affect in the reading passage. It is no wonder that the ego is not threatened; it is not involved substantively in any emotional surrender.

Indeed, much interest and research needs to be spent on the relationship of the emotional and attitudinal behavior of the reader and the psycholinguistic processing that comprise reading of passages with symbolic models.

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Teaching the Research Study Skills

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IT WAS THE INTENT OF THIS STUDY* to direct attention to the teaching of some often neglected skills in the location, organization, and use of information in printed sources. The specific purpose was to develop and try out a plan of instruction for teaching a selected group of study skills in the areas of the use of the library; use of the dictionary; reference skills; and the reading of maps, charts, graphs, and tables; and to investigate the effects of this program on the study skills of the sample involved. This group of study skills was termed "research study-skills.

Design

The study had a simple before-after design with an experimental and a control group (1). The control group,

*This study was made possible by the financial assistance of Grollier, Incorporated.

however, was not tightly controlled, which limited the use of inferential statistical analysis.

By means of pre- and post-testing, an attempt was made to measure achievement in the designated skills in a sixth grade classroom during one academic year.

The subjects for the experimental group in this study were ten girls and eighteen boys who comprised one sixth grade class in an elementary school in a suburban Chicago community. The fact that these twenty-eight pupils were in the sample from the beginning of the study attests to a stable school population. Pupils were assigned to this and other sixth grade classes on a random basis. At the beginning of the study, chronological ages of the children in this group ranged from ten years, ten months to twelve years, nine months with a mean chronological age of eleven years, four months. Intelligence quotients as determined by the Kuhlmann-Anderson Test ranged from 86 to 137 with a mean of 112. As a total group, the control group had similar characteristics, though individuals from the two groups were not paired. In addition, the time span between pre- and post-test was about a month less for the control group than for the experimental.

A major determinant in the selection of the site for this study was the availability of a school library with approximately 5,650 volumes. It contained the usual reference sources and a well maintained card catalog, and employed an accurate Dewey Decimal Classification System. A well prepared school librarian was available on a half-time basis.

The teacher of the experimental class seemed interested in this study and was willing to help plan and carry out the instructional program. She was judged to be an excellent teacher by several administrators in the school system. She held a bachelor's degree,

and her experience included thirteen years of teaching sixth grade. There was no attempt to match teachers in the control and experimental classrooms, other than that the control teacher was also considered to be outstanding by the school administration.

During the summer months preceding the study, the experimental teacher spent a total of sixty hours preparing to teach the research study skills. This time was spent in reading basic literature in this field, in previewing and ordering materials, and in making general plans for integrating instructions in the skills with the regular school program.

Measuring instruments

A number of objective tests were selected to be administered in September to all students in the study. These pretests were selected to measure academic aptitude and achievement in the skills under consideration. Table 1 lists the tests which were administered by two qualified examiners.

Different forms of the Iowa Tests of Basic Skills and the SRA Achievement Series were administered as post-tests. The Research Study Skills Test, with only one form, was readministered. For the experimental class, the post-testing came in early May, and for the control class, the post-testing was conducted at the end of March.

Many of the subtests dealing with research study-skills have relatively few items, and subtests scores are less reliable than are total test scores. Since it is a simple matter to determine which knowledges and skills each item is designed to measure, it was decided to combine the items from all tests in longer and more reliable subtests for each area. That is, all items measuring library skills, dictionary skills, and so on were combined and rescored to make subtests of combined library skills, combined dictionary skills, combined reference skills, com-

bined map reading skills, and combined table and graph reading skills.

Observation

The experimental classroom was observed for a total of thirty-four days during the school year by one of the two experimenters. The purpose was to maintain a close contact with the teacher and the day-by-day program, and to gain further data concerning the teaching of the skills. On the occasion of each visit, conferences were held with the teacher regarding procedures, techniques, materials, and other aspects of the program. The teacher kept a daily log of each day's activities in teaching the skills which was periodically reviewed by the researchers.

Materials

Materials judged to have high potential in teaching the research study skills were provided for the experimental classroom through a grant from Grolier, Incorporated. Included were dictionaries, sets of encyclopedia, magazines, study skills development kits, and specialized reference sources.

Generally, practice materials for the research study skills are scarce and scattered. About sixty-five exercises were developed to offer instruction and practice in the use of the dictionary, use of the library, and use of reference sources. Each of these exercises was made available in quantities of fifty. An early decision was made to use the Science Research Associates Map and Globe Skills Kit (2) and their Graph and Picture Study Skills Kit (3) for instruction and controlled practice of these skills. As a consequence of this decision, no practice exercises were prepared in these areas.

Time devoted

The teacher was provided forms to use in keeping an accurate account of class time devoted to teaching and practicing each of the five major skill areas.

During the thirty weeks of instruction, 2,740 minutes or about forty-five class hours were devoted to instruction in the research study skills, or about one and one half hours per week. The amount of time spent on each skill area was left largely to the discretion of the teacher and varied markedly for the different areas. The total time devoted to each skill area ranged from about four hours to about sixteen hours, as shown in Table 5. The teacher justified these distributions in terms of apparent need and their relationship to the ongoing curriculum in other areas.

Instructional program

From the writings of leading authors in the field of reading, a group of study skills was selected for this study. From this literature and a logical analysis of each skill area, a detailed list of knowledges and intellectual skills and abilities was formulated. These constituted the instructional objectives of the program.

The three-stage approach to teaching study skills advocated by Kranyik and Shankman (4) was the basis for the plan of instruction. These stages were introductory, developmental, and independent application. During stage one the teacher described the skill, demonstrated its use, and discussed it with the class. Stage two provided for practice in controlled situations. Practice exercises and skill development kits were extensively used at this stage, with pupils both individually and in group settings. The independent application stage occurred when assignments were made which required use of the research study skills. A few of these opportunities were related to assignments in science, language arts, and reading, and many in social studies. At this stage, skills were used in clusters as needed for the location and utilization of information.

While it was considered desirable to

offer the teacher guidance and direction in teaching the research study skills, and while there was good rapport in frequent conferences, decisions regarding teaching style and methodology, and also regarding the integration of the study skills program into the regular school program were regarded as the domain of the teacher.

Findings

Two kinds of data were derived from this study. The first came from analysis of pretest and post-test scores. The second came from direct observation of class proceedings from which the records of observation provided partial data. Additional generalizations from observations were independent of records and certainly reflect the biases of the investigators.

During a seven- and one-half month period of instruction, one might expect a mean gain in grade equivalent of .75 years for an average group. The group in this study, with a mean intelligence quotient of 112, probably would be expected to make a slightly greater gain. It is apparent from Table 2 that the experimental group in this study did make at least normal gains or better in each area measured by the Iowa and SRA tests. It is interesting to note that these gains were made from pretest scores which generally were above grade level.

Table 3 indicates the difference in interquartile range on the subtests from pretest to post-test. While there was little increase in this measure of dispersion, one trend is obvious. The first and third quartile scores on each subtest of the post-test were considerably higher than the same quartile scores on the pretest.

The mean percentages of items correct for each skill area based on the combined test items from all tests from all tests are shown in Table 4. Rough comparisons can be made on these

but the norms for the tests in

their original form are obviously no longer valid. On the pretest, the highest mean percentage of items correct was 52.8 percent and the lowest was 42.5 percent for a range of 10.3 percent. On the post-test, the highest mean was 73.1 percent and the lowest mean was 53 percent for a range of 20.1 percent. Not only was the range of means substantially greater on the post-test, but the smallest mean on the post-test was greater than the highest pretest mean.

A general indication of the efficiency of the instruction for each skill area can be gained by looking at mean gain in percentage of items correct in relation to the total hours spent in instruction per skill area. Table 5 shows these data. In terms of time devoted, the instruction in some of the areas of lesser mean gain seemed to be more efficient.

Table 6 is designed to permit comparison of the experimental group with the control group which did not have the planned program of research study skills. The following observations can be made regarding these data: 1) The experimental group had lower mean scores on every skill area measured on the pretest. 2) On every subtest, the gain from pre- to post-test was greater for the experimental group. 3) The gains for the experimental group were especially noteworthy in the area of reference materials. Instruction in this area was probably more nearly geared to the measuring instruments. 4) The mean grade equivalent gain of the experimental group was approximately double that of the control group on the Iowa Work Study Skills Total. While the experimental program seemed clearly superior in the areas of reference skills and reading charts and graphs, the experimental group did not seem to exceed normal expectations in map reading.

The results of testing expressed in terms of percentage of items correct

are shown in Table 7. The gains from pre- to post-test in percentage of items correct are greater for the experimental group for each of the five areas and substantially greater in the areas of dictionary skills, library skills, and reference skills.

There were a number of findings which resulted from the direct observations. Only four are reported here.

1. A teaching strategy based on a four stage approach of introductory teaching, developmental or controlled-practice, reinforcement and direct re-teaching, and assigned independent application developed from the three stage approach outlined earlier. The first teaching stage introduces the skill and clarifies its use; this might take the form of a number of expository, demonstration, inquiry, or problem solving approaches. The second stage provides practice in a controlled situation. Ordinarily this stage would include short drill exercises. Stage three reinforces and culminates the first lesson on a particular skill. This might take the form of the pupil correcting the exercise completed in stage two. These first three stages might often be completed in a single session of thirty to forty minutes. The fourth stage, independent application, would ordinarily involve assignments requiring the use in a content area of a newly learned skill. When these stages were followed, learning seemed to progress well.

2. Observation made it readily apparent that the research study skills emphasized in this study are only a basic part of a hierarchy of skills that are needed for efficient, independent use of material in printed sources. Also included in this hierarchy are abilities to select and interpret information, to analyze and organize facts and ideas, and to apply information to pupil's unique purposes.

3. It seems likely that short and frequent practice exercises are more ef-

fective in initial teaching of the research study skills than are longer and less frequent exercises. Such exercises can focus on very specific skills.

4. One last observation should be made. The evaluation techniques and devices presently available do not adequately describe growth in ability to independently use the research study skills. Evidences of such growth, however, were readily apparent during the year. For example, the dictionary became a functional tool for many students as the year progressed. It was often used without the teacher directing the pupil to do so. An increasing variety of other reference sources were used more often as the year progressed.

Toward the close of the study, pupils approached information-seeking tasks with considerably more assurance. This, of course, is the pay off for attention to research study skills; however, instances of this increased maturity are easy to describe but difficult to quantify.

Table 1

MEASURING INSTRUMENTS

1. Iowa Tests of Basic Skills: Test R, Reading Comprehension, Test W, Work Study Skills (Test W-1, Map Reading, Test W-2, Reading Graphs and Tables, and Test W-3, Knowledge and Use of Reference Materials), Test V, Vocabulary; E. R. Lindquist and A. N. Hieronymus, Houghton Mifflin Company, 1955.
2. SRA Achievement Series: Test A, Work Study Skills (Using a Table of Contents, Using an Index, Reading Charts) Louis Thorpe, D. Welty Iefever, and Robert A. Naslund, Science Research Associates, 1955.
3. Research Study Skills Test: J. Harlan Shores, Fredrick A. Rodgers and Mary C. Newland, unpublished test, 1966. (This instrument was designed to supplement the two published tests of study skills used in this study. It is included to aid in the measurement of those skills not adequately sampled by the two published instruments.)
4. Kuhlmann-Anderson Test, Form EF: Seventh Edition: Rose G. Anderson, Personnel Press, 1964. (Test of Academic Potential)

Table 2
Mean Grade-Equivalent Scores and Gains on Iowa and SRA Tests

Test	Group Grade Equivalent Mean Score		
	Pretest	Post-test	Gain
Iowa Tests of Basic Skills			
Map Reading	6.8	7.7	.9
Graph and Table Reading	6.7	7.7	1.0
Reference Materials	5.9	8.1	2.2
Work Study Skills—Total	6.5	7.8	1.3
Science Research Associates Achievement Series			
Graphs, Charts, Tables	7.3	9.3	2.0
Reference Materials	6.9	9.2	2.3

Table 3
Grade Equivalent Interquartile Ranges on Iowa Tests of Work Study Skills

Subtests	Pretest			Post-test		
	First Quartile Score	Third Quartile Score	Interquartile Range	First Quartile Score	Third Quartile Score	Interquartile Range
Map Reading	5.8	7.4	1.6	7.1	8.5	
Graph and Table Reading	5.8	7.2	1.4	6.9	8.7	1.8
Reference Skills	5.1	6.5	1.4	7.3	9.0	1.7
Work Study Skills—Total	5.7	7.1	1.4	7.1	8.7	1.6

Table 4
Mean Percentage of Items Correct on Pre and Post Tests

Skill Area	Pretest Mean Percent Correct	Post-test Mean Percent Correct	Mean Gain in Percent of Items Correct
Dictionary Skills	47.47 (38 items)	73.07 (38 items)	25.6
Graph and Table Reading Skills	42.64 (80 items)	61.79 (80 items)	19.15
Library Skills	52.82 (52 items)	68.96 (52 items)	16.14
Reference Skills	49.96 (64 items)	64.39 (63 items)	14.43
Map Reading	42.50 (54 items)	53.04 (55 items)	10.54

Table 5

Class Time Devoted to the Research-Study Skills and Mean Gains
in Percentage of Items Correct by Skill Area

<i>Skill Area</i>	<i>Total Hours Devoted</i>	<i>Mean Gain in Percent of Items Correct</i>
Dictionary Skills	164	25.6
Map Reading Skills	1625	10.5
Library Skills	47	16.1
Graph and Table Reading Skills	43	19.2
Reference Skills	40	14.4

Table 6

Comparisons of Mean Grade Scores and Mean Rawscores
for Experimental and Control Groups

<i>Measure</i>	<i>Control Group</i>			<i>Experimental Group</i>		
	<i>Pretest</i>	<i>Post-test</i>	<i>Gain</i>	<i>Pretest</i>	<i>Post-test</i>	<i>Gain</i>
Chronological Age	136			136		
Mental Age (Months)	160			153		
Intelligence Quotient	119.4			112.1		
Grade Equivalents						
Iowa Map Reading	7.3	8.1	.8	6.8	7.7	.9
Iowa Graphs and Tables	7.4	7.8	.4	6.7	7.7	1.0
Iowa References	7.1	7.8	.7	5.9	8.1	2.2
Iowa Totals	7.3	7.9	.6	6.5	7.8	1.3
SRA References	7.8	9.4	1.6	6.9	9.2	2.3
SRA Charts	7.7	9.6	1.9	7.3	9.3	2.0
Raw Scores						
Combined Dictionary	27.8	28.3	.5	18.1	27.8	9.7
Combined References	39.2	42.0	2.8	32.0	40.6	8.6
Combined Graphs and Tables	43.5	50.3	6.8	34.0	49.0	15.0

Table 7

Mean Percentage of Items Correct on Pre- and Post-Tests
by Control and Experimental Groups

<i>Skill Area</i>	<i>Percentage of Items Correct</i>					
	<i>Control Group</i>			<i>Experimental Group</i>		
	<i>Pretest</i>	<i>Post-test</i>	<i>Gain</i>	<i>Pretest</i>	<i>Post-test</i>	<i>Gain</i>
Dictionary Skills	69.7	72.5	2.8	47.6	73.1	25.5
Library Skills	62.1	66.4	4.3	52.8	69.0	16.2
Reference Skills	60.3	65.7	5.4	50.0	64.4	14.4
Graphs, Charts, and Tables	55.8	64.5	8.7	42.6	61.8	19.2
Map Reading	54.9	62.3	7.4	42.5	53.0	10.5

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Relationship of Specific Factors to Reading

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A STUDY WAS MADE of grades three and seven to determine the relationship of certain specific factors to reading. The population consisted of 196 third grade children and 108 seventh grade children. The school district is a rural county in Georgia. The occupation of the majority of parents would be classified as agricultural, semiskilled, and unskilled.

The California Test of Mental Maturity and the California Arithmetic Test were used in the evaluation. These were administered regularly by the school and results of school administered tests were used. Use of previously administered tests eliminated any effect of a special program or a special testing situation.

Factors studied

In this study, the following factors were evaluated: chronological age at time of school entrance, chronological age at time of entrance with intelligence a covariate, race, race with intelligence as a covariate, sex, general adjustment to the classroom, sex, with intelligence a covariate, amount of reading material in the home, family income, whether father worked, whether mother worked, and occupation of the principal wage earner.

Chronological age

Chronological age at the time the child entered school at the first grade level was evaluated. The children were divided into four groups according to birth month. Those born in the first three months of the admittance year were in Group 1; Group 2 pupils were born in the second three months of the admittance year; Group 3 pupils were born in the third three months; and Group 4, the youngest, pupils were born in the last three months of the admittance year.

The Duncan Multiple Range Test was used to determine if difference between groups were significant at the five percent level. The same groupings were used with intelligence as a covariate to determine significant differences.

In Table 1, Column 2, it is noted that there are no significant differences between the four groups at the third grade level. Differences are not significant when intelligence is used as a covariate, Table 1, Column 3. In both cases, it is noted that the older group

Table 1

Group	Grade 3		Grade 7	
	Age	Covariate IQ	Age	Covariate IQ
1	2.68788	2.72823	6.03270	6.61011
2	2.82334	2.79980	7.42777	6.93570
3	2.95159	2.90399	6.54131	6.65315
4	2.83757	2.78166	6.35860	6.80330

had the lowest mean, although it was not significant. At the seventh grade level, differences in reading achievement were not significant between the four groups studied using age, nor were the differences significant when intelligence was used as a covariate, Table 1, Columns 4 and 5. As in the third grade, the older groups had the lowest mean scores in both instances, although these differences were not significant.

Race

White children were significantly higher in reading achievement than Negro children at the third grade level, Table 2, Column 2. When intelligence was used as a covariate, the difference was not significant, although the mean score of white children was slightly higher, Table 2, Column 3.

The results at the seventh grade were similar. White children had higher mean scores when only scores were considered and when intelligence was a covariate. These differences were not significant when intelligence was used as a covariate, Table 2, Columns 4 and 5.

Sex

Table 3, Column 1, indicates that females were significantly higher than

males in reading achievement at the third grade level. When intelligence was used as a covariate at the third grade level, Table 3, Column 3, the achievement of females was significantly higher than the achievement of males.

At the seventh grade level the mean reading score of females was higher than the scores of males when only reading achievement was considered and when intelligence was used as a covariate. Differences between the scores of males and females, however, were not significant at the seventh grade level.

Adjustment, reading materials, income—third grade

Classroom teachers of the children studied were asked to rate the children on a five point scale to study relationship with reading instruction. They rated the children in three areas: 1) the child's adjustment to the classroom, 2) the amount of reading materials in the home, and 3) family income. Adjustment to the classroom was rated very good, good, average, poor, and very poor. The amount of reading material in the home was rated large amount, more than average, average, less than average, and practi-

Table 2

	Grade 3		Grade 7	
	Race	IQ Covariate	Race	IQ Covariate
White	3.01522*	2.84316	7.39471*	7.05281
Negro	2.63497	2.76368	5.78547	6.44832

* Significant at 5 percent level.

Table 3

	Grade 3		Grade 7	
	Sex	IQ Covariate	Sex	IQ Covariate
Female	3.06745*	3.06078*	6.84775	6.83592
Male	2.58274	2.54605	6.33244	6.66521

* Significant at the 5 percent level.

cally none. Family income was rated very high, more than average, average, below average, and very low.

The children classified by teachers as having very good adjustment and good adjustment to the classroom, the two highest groups, were significantly higher in reading achievement, at the 5 percent level, than the three lower groups. Other differences were not significant at the 5 percent level, using the Duncan Multiple Range Test.

The reading achievement means decreased with all five groups as the amount of reading material in the home decreased. Children in Group 1, with the greatest amount of reading material in the home, achieved in reading significantly higher than the other four groups. Group 5, those children having practically no reading materials in the home, were significantly lower in achievement than the other four groups. Other differences were not significant.

Table 4
Reading Third Grade

Group	Adjustment	Reading Materials (Perfect 1-5)	Income
1	2.29377 A	3.69754 B	3.18394
2	2.38731 A	1.70994	2.81548
3	1.58043	1.43522	3.07752
4	1.63200	1.36717	3.17329
5	1.10680	1.19557 C	3.11795

A. Groups 1 and 2 were significantly higher than groups 3, 4, and 5 at the five percent level.

B. Group 1 was significantly higher than the four other groups at the five percent level.

C. Group 5 was significantly lower than the four other groups at the five percent level.

Adjustment, reading materials, income—seventh grade

Classroom teachers rated seventh grade children on adjustment to the classroom, reading materials in the home, and family income on the same five point scale as third grade children.

As in third grade, children who were rated in the two upper groups of adjustment to classroom achieved higher in reading than children less well adjusted. Group 1 was significantly higher than groups 4 and 5. Group 2 was significantly higher than groups 3, 4, and 5. Group 3 was significantly higher than group 4.

As in third grade, the achievement of seventh grade children decreased as the amount of reading material in the home decreased, when they were rated on a five point scale. The only difference that was significant, however, was group 2. This group achieved significantly higher than groups 3, 4, and 5.

Family income had little relationship with reading achievement in the seventh grade. The only significant difference was Group 3 achieving higher than Group 4.

Table 5
Reading Seventh Grade

Group	Adjustment	Materials Reading (Perfect)	Income
1	7.76725 A	7.74778	7.72256
2	7.89360 B	7.64821	6.29323
3	6.86244 C	6.29852	6.63228 D
4	5.48871	6.20748	5.75202
5	5.56018	5.67020	7.17210

A. Group 1 was significantly higher than groups 4 and 5.

B. Group 2 was significantly higher than groups 3, 4, and 5.

C. Group 3 was significantly higher than group 4.

D. Group 3 was significantly higher than group 4.

Father works/mother works

The differences in reading achievement of children whose father worked or did not work were not significant in either the third or seventh grade. Results were similar whether the mother worked or did not work. Differences were not significant in either the third grade or the seventh grade at the five percent level.

Table 6:

Summary

Father-Mother Works

Group Works	<i>Third Grade</i>		<i>Seventh Grade</i>	
	Father	Mother	Father	Mother
Does not Work	1.86783	1.85371	7.41655	7.74784
	1.73229	1.74641	6.01233	5.68103

Occupation of principal wage earner

The occupation of the principal wage earner was classified as to the seven classifications of Hollingshead. These categories:

1. Higher executives, proprietors of large concerns, and major professionals
2. Business managers, proprietors of medium sized businesses, and lesser professionals
3. Administrative personnel, small independent businesses, and minor professionals
4. Clerical and sales workers, technicians, and owners of little businesses (Value under \$6,000)
5. Skilled manual employees
6. Machine operators and semiskilled employees
7. Unskilled employees

Table 7, column 2 indicates that at the third grade level, the occupation of the principal wage earner made no significant difference in the reading achievement of children. At the seventh grade level, there was only one group where significant difference existed. Group 2 achieved higher than groups 4, 5, and 7 in reading, table 6, column 3.

Table 7

Group	<i>Occupation of Principal Wage Earner</i>	
	<i>Third Grade</i>	<i>Seventh Grade</i>
1	2.37527	7.35320
2	1.45467	8.22894 A
3	1.95889	7.08133
4	1.71452	6.09536
5	1.46459	5.82377
6	1.85819	6.40693
7	1.77429	6.01153

A. Group 2 was significantly higher in reading than groups 4, 5, and 7.

With this group of children, grades three and seven, achievement in reading was not significant when the children were grouped according to chronological age at the time of school entrance. Intelligence was used as a covariate with age at the time of school entrance and was not significant.

White children scored significantly higher than Negro children when only reading achievement scores were considered. The differences were not significant when intelligence was a covariate, although the white means were greater than the Negro means.

At the third grade level, females achieved significantly higher than males. At the seventh grade level, these differences were not significant; the means of the female groups, however, were greater than the means of the male groups.

When children were grouped into five groups as to their adjustment to school, the two groups ranked as best adjusted achieved significantly better than the three groups less well adjusted at the third and at the seventh grade levels.

The means of five groups ranked according to the amount of reading material in the home indicates that achievement decreased at both grade levels as the amount of reading material in the home decreased. At the third grade level the group with the most reading material was significantly higher than the other four groups, and the group with least amount of material was significantly lower than the other four groups.

Family income, with this group of children, had little relationship with reading achievement.

When the father worked or whether the mother worked was not significant at either the third or seventh grade level.

Occupation of the principal wage earner was not a factor in predicting

reading achievement at either the third or seventh grade level.

Assessment of Children's Statements of the Main Idea in Reading*

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THE RESULTS of preliminary work designed to establish a framework for the study of elementary pupils' ability to formulate and state a literal main idea in reading has been reported elsewhere (1, 2). Because specific methodological and conceptual precedents did not exist, the focus in the earlier work was upon 1) methodological matters, mainly devising and testing materials, procedures, and response scaling methods appropriate for use with elementary school children; and 2) descriptive data derived from analyses of children's attempts to formulate and state the main ideas implicit, but not explicitly stated in short, specially constructed paragraphs. In the present study, the two main purposes were to refine the scale and the judging procedures used to assign quantitative ratings to individual's main idea statements, and to make use of the newly developed material and procedures in seeking additional descriptive data regarding children's main idea statements.

One of the major tasks that we confronted in our earlier attempts to examine the nature of children's main

idea statements was to devise a means for scoring or categorizing the statements for purposes of description and analysis. The final decision was to develop a scale that could be used to place responses into descriptive categories and to quantify response quality. After much exploratory work and revision, we developed a six-point scale, with category values ranging from 0, where there was no response, to 6, where the main idea statement was adequate in terms of both general and restrictive elements. The six-point scale was used in our exploratory study, but it became c' r in application that provision of finer distinctions would permit more accurate judgments and more explicit descriptions of responses. Consequently, a twelve-point Scale for Numerical Ordering of Response Tendencies, (referred to hereafter as SNORT) was devised and used in the present study.

With the decision to employ a new scale in evaluating main idea responses, it became necessary to reexamine the reliability of ratings by judges who used the scale. With the provision of more explicit categories, the expectation was that interjudge reliability would increase, but the possibility that finer distinctions would lead to increased confusion remained. One specific focus of the present study, then, was upon validation of SNORT in terms of interjudge reliability.

A second specific focus was upon the question of interchangeability of stimulus paragraphs. In our earlier work, we devised three paragraphs that were comparable in readability ratings, length, linguistic constraints, and information content. We assumed that the paragraphs were equal—that is, that children would be equally successful in extracting, formulating, and stating main ideas for each of them—but we worked only with the sums of scores from all three paragraphs. Thus, the question of whether the par-

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agraphs might not in fact differ, was neither answered nor asked. In the present study we did ask the question, because if the paragraphs are indeed equal there would be little reason to work with more than one in future studies.

A final focus of the study was upon the SNORT ratings of the main idea responses of 400 elementary school children. The intent was to create a descriptive profile of the main idea responses of a fairly large sample of children and to examine it for implications.

Method

Subjects and procedure. Subjects were chosen from among the 512 second and fifth grade pupils enrolled in four Madison, Wisconsin, elementary schools. Children were chosen at random from the two grade levels and asked to read a sample test selection. Only those who had no difficulty with the mechanics of the reading task were retained as subjects. Two hundred subjects (equal numbers of boys and girls) from each grade level were tested, for a total of 400 subjects.

Each subject, tested individually in a private room in the school building, read and attempted to state the main idea of three paragraphs. The directions and procedure are described elsewhere (2) in detail. Briefly, each testing session began with a short warmup task in which the subject was asked to compose and read back four simple sentences. The purpose of the warm up was to establish both rapport and a set to respond in complete sentences. Then the subject was asked to read a paragraph silently while thinking about "what all the sentences say together." Pilot testing showed that the latter phrase was effective in directing the subject toward a synthesis of all the elements rather than selection of a single specific thought. The examiner supplied any words questioned

by the subject. When the reading was completed, the subject was told to "make up just one sentence in your own words that says what all the sentences tell you." The directions were partially repeated between paragraphs. Order of presentation was systematically varied so that each paragraph was the first, the second, and the third one read an approximately equal number of times. The entire task took approximately eight minutes.

Material. Details of the underlying rationale and the development of the paragraphs used in our earlier studies are given elsewhere (Otto & Barrett, in press). Paragraphs for those studies were developed at six readability levels, ranging from grade one to grade six, and in two styles, one requiring synthesis of both subject and predicate and the other requiring synthesis of the predicate only for an adequate main idea statement. The three paragraphs chosen for use in the present study 1) had a first grade readability rating because we wanted to minimize the mechanical demands of the reading task, and 2) required synthesis of both subject and predicate, although our previous work revealed no difference between the two styles studied. The actual paragraphs follow:

Paragraph A

Cats help the farmer keep mice from his corn. A horse helps the farmer work. Cows give milk to the farmer. A dog helps the farmer watch the barnyard. (Main idea: Animals help farmers in different ways.)

Paragraph B

Robins may build nests under a roof. Bluejays like nests in trees. Ducks make nests in tall grass. Woodpeckers make nests inside wood fence posts. (Main idea: Birds build nests in different places.)

Paragraph C

Lions use claws to hold their food. Bears have claws for digging. Cats' claws help them climb trees quickly. Tigers use strong claws for killing. (Main idea: Animals use their claws for different purposes.)

Response Scale. The twelve-point scale devised for use in the present

study is presented in the schema that follows. An operational definition is given for each category.

Scale for Numerical Ordering of Response-Tendencies (SNORT) With Examples

<i>Category and Examples.</i>	<i>Scale Value</i>
No response, or a response showing that the task was not understood; i.e., reading stimulus material.	0
1. "About..." Repeated question twice. "I don't know."	
2. Read orally a sentence from the paragraph.	
3. Read the paragraph orally.	
Irrelevant or incorrect material, i.e., paraphrasing or bring in material not directly related to the paragraph.	1
1. Rabbits can be pets.	
2. Robins make nests in trees.	
3. Baby chicks need food.	
One element partially given.	2
1. This story is talking about birds.	
2. Nests.	
3. Many nests are made.	
One element too generally or specifically stated, plus irrelevant or incorrect data.	3
1. Birds, nests, and fences.	
2. It says robins, bluejays, woodpeckers, and ducks make nests in the grass.	
3. Some bluejays, ducks, and robins make nests and stuff . . . that's all.	
One element too generally or specifically stated.	4
1. Robins, ducks, bluejays have nests.	
2. Birds all build something.	
3. Birds in their nests.	
Two elements too generally or specifically stated plus irrelevant or incorrect data.	5
1. It tells about birds, the kind, what they do, where they build their bird houses, what they build it out of.	
(Only one example given)	
Two elements too generally or specifically stated.	6
1. Where bluejays, birds, and ducks put their nests.	
2. Robins, bluejays, and woodpeckers make their nests in high grass, under rooftops and in fence posts.	
3. What birds make their places in.	
One element correctly stated plus irrelevant or incorrect data.	7
1. How birds make nests.	
2. Birds make nests in trees.	
3. Different kinds of birds make different kinds of nests.	
One element correctly stated.	8
Birds make nests.	

2. Birds are nesting.	
3. The birds all make a home.	
One element correctly stated plus one element too generally or specifically stated plus irrelevant or incorrect data.	9
1. How and where birds make their nests.	
2. What kind of birds make what kind of nest and where.	
3. That birds build nests in some places that you wouldn't build your house in.	
One element correctly stated plus one element too generally or specifically stated.	10
1. Where birds like to build nests.	
2. Robins, bluejays, and ducks build nests in different places.	
3. The birds make nests in things or under them.	
Two elements correctly stated plus irrelevant or incorrect data.	11
1. Birds make <i>different</i> nests in different places.	
2. <i>Some</i> birds build nests in different places.	
3. That all birds make nests and some make nests in different places.	
Two elements correctly stated.	12
1. Birds make nests in different places.	
2. Birds build nests in many places.	
3. Different birds build nests in different places.	

In effect, main idea responses are ranked on SNORT by the degree of synthesis within each response. Optimal value is placed upon appropriate synthesis of both subject and predicate elements, over- or undergeneralizations of either element have a lesser value, and parroted specifics or irrelevant associations have little or no value. Application of the scale is limited to literal main idea statements inferred from the explicit content of the paragraphs.

Scoring responses. Each subject's main idea responses were coded, scrambled, and typed on master sheets prior to judging. Three judges, who had participated in training sessions devoted to rating sample responses on SNORT, independently assigned each response to a SNORT category. Thus, there were three ratings for each of the three responses given by individual subjects. The judges met three times

during the time that they were assigning ratings to discuss their individual operational approaches to the task in order to keep idiosyncratic percepts and interpretations from running wild.

Results and discussion

Data from the second and fifth grade subjects were examined separately. As expected, we found in our earlier work that children's main idea responses increase in quality across grade level. In the present study, we simply wanted to make informal comparisons of data from primary and intermediate grade children.

Interjudge agreement. One of our concerns was whether there would be high agreement among judges using SNORT to rate main idea statements. When the ratings for all three paragraphs were totaled, the interjudge reliability coefficients were .975, .973 and .974 with second grade data and .962, .962 and .965 with fifth grade data. Likewise, interjudge reliability coefficients for each paragraph taken individually were in all cases higher than .91. Agreement among judges, then, was very high when ratings for all paragraphs combined and for single paragraphs were considered. On the basis of this finding, it would appear to be defensible to place confidence in the ratings of a single judge working with SNORT.

Comparison of paragraphs. A second concern was whether our three carefully constructed paragraphs were, as we hoped, interchangeable. To answer this question, we first examined intercorrelations for main idea ratings for each paragraph. If the three paragraphs evoked main idea statements of comparable SNORT ratings, then the intercorrelations among them would be expected to be about as high as the intercorrelation among judges' ratings of each paragraph. With the second grade data, the intercorrelations of the sum of the three judges' ratings for

each paragraph were: $A-B=.562$, $A-C=.591$, $B-C=.517$. With fifth grade data the intercorrelations were: $A-B=.248$, $A-C=.306$, $B-C=.531$. At each grade level, the intercorrelations of individual judge's ratings of the paragraphs were almost identical in magnitude to those given, which again supports the suggestion that a single judge serves as well as three. The low interparagraph correlations show that the three paragraphs, though related, do not appear to be interchangeable despite the controls imposed when they were written.

The possibility remained that the order in which the paragraphs were presented may have had some effect upon the responses evoked, due either to a straightforward training effect or to an interaction between content and order. Although the order of presentation was varied to break up any systematic order effect, the number of subjects who read each paragraph in each order was not exactly equal because some improvising had been done to round out numbers of subjects in the four schools. We decided to run an analysis of variance to examine Order and Paragraph effects and the Order x Paragraph interaction. First, however, we equalized the number of subjects who read each paragraph in each order; remaining were 183 second grade and 192 fifth grade subjects. Mean SNORT ratings of these subjects' responses are given by order and paragraph in Table 1. Row sums are mean ratings by paragraph, and column sums are mean ratings across paragraphs in each order position. The analysis of variance, in which row and column scores were arbitrarily treated as independent, is summarized in Table 2.

With second grade data, only the paragraph effect was significant ($p < .01$). Inspection of Table 1 shows that a relatively higher mean was attained with Paragraph B than with

Table 1
Mean SNORT Ratings by Paragraph and Order

Paragraph	Grade							
	2 (N = 183)				5 (N = 192)			
	Order				Order			
	1	2	3	Σ	1	2	3	Σ
A	4.23	4.11	4.38	4.24	7.22	8.22	7.70	7.80
B	5.61	5.51	5.84	5.65	8.70	8.34	9.64	8.90
C	4.11	3.56	4.10	3.92	6.86	8.69	8.03	7.84
Σ	4.65	4.39	4.77	4.60	7.59	8.42	8.55	8.19

Table 2
Analysis of Variance of SNORT Ratings by Paragraph and Order

Source		Grade					
		2			5		
		df	MS	F	df	MS	F
Order (O)		2	6.79	.484	2	51.28	5.21*
Paragraph (P)		2	154.63	11.030*	2	72.76	7.39*
O x P		4	1.06	.076	4	24.82	2.52**
Error		540	14.09	—	575	9.84	—

* $p < .01$

** $p < .05$

Paragraph A or C. With the fifth grade data, the Order and the Paragraph effects ($p < .01$) as well as the interaction ($p < .05$) were significant. Inspection of the means in Table 1 shows that in general Paragraph B again evoked the most highly rated main idea statements, and the paragraph presented first evoked the least highly rated main idea statements. As for the interaction, Sheffé tests revealed the Paragraph B statements differed significantly from the Paragraph A and C statements in both first and third position, but there were no differences in second position.

Three conclusions seem justified. First, subjects from both grade levels were able to give the most highly rated main idea statements in response to Paragraph B, which appears to indicate that despite the linguistic constraints, the content of that paragraph could

most readily be handled in terms of the main idea task. Perhaps the subjects' success with Paragraph B is attributable to differences in their contact with the concepts underlying the three main ideas. That is, second and fifth grade students in metropolitan area schools are more likely to have observed birds building nests than animals working on a farm or using their claws in the wild. The message may be that concrete experiences explicitly enhance a child's ability to infer a complex main idea. Second, in view of the significant order effect for fifth grade only, it appears that the relatively more sophisticated subjects benefited from practice with the task. The second graders, whose statements were consistently rated relatively low, apparently gained nothing from the experience. Perhaps the implication is that instruction designed to help pupils de-

rive and state a literal main idea in reading will be more efficient if it is deferred until later in the elementary school experience. This idea, of course, needs to be examined much more explicitly before final conclusions are reached. Third, if a single paragraph were to be chosen for future work, Paragraph B might be the best choice not only because the subjects were able to respond most adequately to it, but also because the concepts involved may be more familiar to more second and fifth graders.

SNORT ratings. A third and final focus of the study was upon the actual SNORT ratings of the second and fifth grade subjects' main idea statements. A frequency distribution of the SNORT ratings of subjects' main idea responses to Paragraph B is given in Table 3. Examples of actual responses given to Paragraph B are included with the SNORT scale description in the method section of this paper.

In our earlier work, a developmental trend toward higher response ratings across grade levels was clear, and the trend is again clear when the distributions of second and fifth graders' responses are compared. Furthermore, if SNORT categories are collapsed, it is possible to say that 28 percent of the second grade subjects (Categories 0 and 1) could not cope with the task, whereas this was true of only 2 percent of the fifth grade subjects. Forty-three percent of the second grade subjects were bound to the first or to a single element of the main idea (Categories 3 to 8). In general, these responses tended to be phrases or sentence fragments, similar to the "titles" called for in many traditional comprehension tests. Only 34 percent of the fifth graders responded in such a fashion. At the upper end of the scale, 29 percent of the second grade subjects received ratings (9-12) that denoted a response at least approximating the

Table 3

Frequency Distribution of Subjects' Paragraph B Responses by SNORT Categories

SNORT Category	Grade			
	2		5	
	N	%	N	%
0	9	4.5	0	0
1	47	23.5	3	1.5
2	15	7.5	11	5.5
3	6	3	4	2
4	12	6	5	2.5
5	1	0.5	0	0
6	3	1.5	5	2.5
7	19	9.5	29	14.5
8	30	15	15	7.5
9	5	2.5	11	5.5
10	43	21.5	61	30.5
11	2	1	14	7
12	8	4	42	21

whole main idea sentence, whereas 64 percent of the fifth graders' responses received similar ratings. Perhaps, then, second graders have developed a set to respond to a main idea task with title-like statements due to their past experience; or, the task may demand a level of maturity not yet attained by most second graders. Work with alternate instructional approaches will help to clarify the source of their difficulty. While the majority of fifth graders appear to be able to cope with the task of formulating the main idea when materials are extremely simple and straightforward, work with more complex main idea tasks is needed.

We feel that we have made some progress in tackling a problem that is as complex as it is important. We intend to do more.

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Relationships Between Reading Interest and Reading Comprehension

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THE EFFECTIVENESS OF ANY READING PROGRAM is ultimately determined by the kind of reader it produces. Sensitive researchers must raise such questions as: Once a child has acquired the ability to read, what place does reading assume in his life? Does it become a positive factor in his personal growth? Does he use books to his own advantage? For what purpose? For what effects? The importance of guiding the growth of reading interests of children is emphasized by the general poverty of reading interests characteristic of many adults (6).

Interest manifests itself in many ways. Teachers and parents report instances in which children who have poor reading skills are able to construct complicated models by "reading the directions" included in the kit. Teenagers are reported to be able to read a state driver's manual, read and pass a test on that manual, and yet are unable to read their assigned textbooks.

The writer vividly recalls an instance in which a fifth grade child, unable to score at a second grade level on any of the silent or oral reading tests administered to him, demonstrated a remarkable facility with words as he read with ease and relative fluency from a children's encyclopedia a portion of an article on dinosaurs. Further, he correctly pronounced "Tyrannosaurus Rex" and explained that he was one of the few flesh eaters of his era—"by contrast with the vegetarian habits of his cousins!"

Such instances are not unique. They do suggest that the somewhat unique and highly personal feelings that a

child has when he is confronted with reading material may be a key to what he will or will not understand, to what he will or will not read.

Historically, the importance of interest as a factor in reading instruction has long been emphasized by researchers (1, 3, 4, 5, 11). Robinson (7), in a review of trends in the teaching of reading, speaks of the importance of "feeding children's interests" in order to encourage them to use their reading skills.

Comprehension is one of the most important skills, or abilities, in reading. Shores (8), discussing several inadequacies of reading tests, implies that the interest of the reader in the reading content of tests may be an important factor influencing his performance on a test of reading comprehension. Witty (12), in a more recent article, suggests that interest is a factor in increasing reading "efficiency" and cites the need for such research.

While children's reading interests have received considerable attention in the literature on reading, specific applications of this knowledge to comprehension in reading are surprisingly scant. Strang (9) points out that even readability formulae do not include the factor of interest. Indeed, in a somewhat comprehensive search of the literature, only one other study (2) was found which attempted an investigation of such a nature, and which falls within the scope of this paper.

The problem

The writer believes that the level of comprehension a child derives from his reading is often underestimated. Furthermore, it is possible that tests of reading which do not take into account the interests of the reader yield results which are incomplete. The central concern of this investigation is a study of some relationships between reading interests and reading comprehension.

This concern is expressed in the following questions:

1. What is the relationship between levels of interest and the comprehension of materials read by children?
2. What is the relationship between a high level of interest and comprehension when subjects are confronted with materials two grade levels above their measured reading ability?
3. What is the relationship between a low level of interest and comprehension when subjects are confronted with materials two grade levels above their measured reading ability?
4. What is the relationship between reading interest and reading comprehension if this same relationship exists among readers of different ability levels?

Procedures

The study included 578 subjects, drawn from 17 sixth-grade classes in schools located in a large metropolitan area on the West Coast. Of this number, complete data were available on 252 boys and 232 girls. Subjects were delimited to socioeconomic levels within the range of upper-lower to lower-middle class members of a multi-ethnic urban society as determined by the Warner Social Scale Index (10). Intelligence quotients, measured by the Kuhlmann-Anderson Intelligence Tests, ranged from 77 to 140 with a mean of 105. Chronological ages ranged from 11 years 3 months to 13 years 7 months. The mean reading ability was 6.7, the average for the grade placement at the time of year in which the investigation was conducted.

The subjects were divided into seven groups determined by the average scores on the reading vocabulary and reading comprehension subtests achieved on the Gates Reading Survey Test, Form 1. Time was not to be a factor in the subsequent reading assignments, and therefore the speed of comprehension subtest was not included. Each group was required to read fifteen stories with readability scores, according to the Dale-Chall formula, of two grades higher than the mean reading ability for each group.

Thus, subjects scoring at fourth grade level on the reading test, read stories with a readability index of sixth grade. This procedure was followed for all reading levels represented in the subject population, ranging from two years below grade level to four years above grade level.

The subjects rated the stories on a four-point scale to determine degrees of interest, and then answered questions of fact, sequence, and questions requiring the reader to make inferences, draw conclusions and recognize the author's point of view. Comprehension scores from stories of high interest were compared to scores of low interest stories.

Findings

The first analysis of responses was concerned with factors influencing comprehension scores. An analysis of variance of comprehension scores as a function of level of interest and reading level for all subjects revealed that there was a highly significant difference ($P=.001$) between the reading comprehension behavior of each of the seven reading groups, irrespective of the influence of interest.

The data grouped for sex differences revealed that the boys' comprehension was slightly lower than the girls; insofar as the total number of subjects is concerned. In three of the seven groups, however, this finding was reversed. It is an interesting result upon which speculation is possible, and is a fruitful area for future research.

The second set of data from the analysis of variance also revealed highly significant findings ($P=.001$) insofar as the differences between the comprehension of high interest and low interest stories, and irrespective of ability group. The fact that this difference is significant at the .001 level for all subjects does not, however, indicate results that are *predictable* for the different ability groups. It is rea-

sonable to conclude that the reading groups are significantly different from each other in levels of performance of reading comprehension, and that they are similar, as a group, in that they respond with significantly higher comprehension on stories of high interest than they do on low interest.

The third evaluation of the data reveals that, insofar as the interaction of reading interest and reading comprehension is concerned, within each of the reading groups, the comprehension scores do indeed vary as a function of both the ability of the reading group and of level of interest in stories read. The data indicate, however, that there is a gradual diminishing difference of the effect of interest as reading ability increases. Indeed, it seems that interest as a factor of reading comprehension is significantly more important for the lower ability groups. This phenomenon of gradually diminishing effect is significant at greater than the .001 level.

In view of the striking similarity of all groups at the high interest level and the difference extant between groups at the low interest level, a reassessment of the significance of difference between groups is necessary before obvious conclusions are tenable. Therefore, a Sheffé Test for Post Hoc Comparisons was run. The results revealed that the low interest level functions to differentiate between reading ability groups, whereas, except for the lowest ability group, high interest does not differentiate between reading groups ($P = .05$). In the light of such data, then, the negatively cumulative effect of little or no interest on comprehension, particularly for lower ability groups, becomes increasingly important.

Conclusions

Within the delimitations of the study and with respect to the subjects

of this investigation, the following conclusions are tenable:

1. A high interest in stories read by children results in greater comprehension than that which results from low interest.
2. Comprehension of material read by students can be expected to vary as a function of both reading interest and reading ability.
3. Reading interest, as a factor of reading comprehension, may enable most students to read beyond their measured reading ability.
4. High ability students are less affected by reading interest than low ability students.
5. Reading interest, as a factor of reading comprehension, is significant (at the .001 level) to children with reading ability from two years below grade level to one year above grade level. Beyond that level, high ability is sufficient to maintain comprehension.
6. A low interest in the content of reading material is better able to discriminate between the reading ability of children than high reading interest.
7. At a high reading interest level, except for children two or more years below grade level, very little discrimination between reading ability levels is possible.
8. For readers at or below grade level, there is reason to believe that low interest has a negatively cumulative effect.
9. A reassessment of current methods of evaluating children labeled as "poor readers" may be necessary in order to determine if the reader's response is the result of low ability or low interest.
10. There is some evidence to indicate that commonly held expectations of performance of both girls and boys need to be reevaluated, particularly with respect to the influence of reader interest.

Implications for educational practice

The foregoing conclusions have held the writer in check. He has not attempted to generalize beyond the confines of his data or the delimitations of his study. Nor is that the purpose of this section. Rather, this is the writer's attempt at taking the "step beyond," if he findings of this investigation become "truth" as demonstrated by future research and replication.

Implications for educational practice would seem to be legion. For test makers and publishers there is certainly the suggestion that attention be

given to the factor of interest. One generalization that may be ventured is that present tests, without consideration for reader interest, deny many children the opportunity to demonstrate their actual ability. It might be further generalized that present tests of reading are able to discriminate between readers because of the low interest factor. It would seem merited to question this practice. It would also seem justifiable to question the role of education relative to testing and teaching.

The educative role would seem to imply that both measurement and evaluation enable educators to take a positive rather than a negative approach to students. The need for tests to weigh reader interest along with reader performance would seem to be a reasonable recommendation.

Another look at children labeled "poor reader" or "retarded reader" would also appear to be an outgrowth of this investigation. The means of arriving at such a diagnosis would certainly need reevaluating if the proposed changes in tests were to take place. Diagnosticians, trained to look more positively at children, would be another projection of current practice.

The reality of the need for readability formulae may also be challenged. If children are capable of reading beyond their estimated (measured?) ability, if interest is high, then perhaps the real need is to find better ways of measuring interest rather than readability, especially if low interest increases the difficulty of comprehension. For researchers in readability, the need to accommodate for reader interest is clear.

Perhaps the most important applications are those which have to do with classroom practice. Certainly the charge to the teacher and researchers alike is to discover better ways of determining children's reading interest in content. The implication to provide

children with the opportunity to explore their interests is very strong. Some of the successes attributed to individualized reading programs may be more the result of such opportunities, rather than the methodology itself.

If, indeed, children, spurred on by their own interests, are capable of greater comprehension at levels of reading in excess of that which they are presumed able to read, it would seem to be possible, perhaps imperative, for the teacher to use such information as a wedge to increase a child's self-confidence and thus insure continued learning. Assuredly, it is added evidence for the need to break the lockstep of "grade levels" inherent in school organization practices in general, and as concerns the teaching of reading in particular.

The need for an abundance of reading material is clear. The confines of reading textbooks, graded, and used in series, would seem to be a clear violation of the interest needs of children. Additionally, there is a challenge to the need for "high interest low vocabulary" adaptations and abridgements which many teachers seek.

This should not be inferred to mean that children should be provided opportunities to work or to read only in their unique areas of interest. Certainly the school has the responsibility to encourage children to expand their interests. It can hardly hope to do so successfully if the materials of instruction are narrowly confined to assumed grade level progression, nor can teachers encourage children to work in their areas of interest if they are themselves restricted to the lockstep of the textbook.

The dreams of one man and one generation sometimes become the realities of another. So, too, is it with the aforementioned implications for education. The writer is fully aware that without many additional studies few, if any, are worthy of application.

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Tape Recorded American History: Effects on Reading and Listening

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THIS IS THE REPORT of research done

in eighth grade social studies classes to see if poor readers would be aided by being required to simultaneously read and listen to their social studies materials for six weeks. The experiment took place during the second semester of 1967 at the Gillette Road Junior High School, North Syracuse, New York. Gillette Road is a modern, suburban junior high school which houses approximately 1,300 seventh, eighth, and ninth grade students, most of whom are white, middle-class youngsters.

There are a number of reasons why it seemed as if simultaneous reading and listening would be valuable and practical. First, teachers of secondary school social studies often require much of the learning that goes on in their classes to be obtained by reading a single textbook. Moreover, there are often students in these classes who cannot read the assigned text without difficulty and frustration. Any method which would help teachers and students in these situations would have great merit.

The prime responsibility for the teaching of any skills lies with the teacher who requires the students to use them. Teachers, however, feel hemmed in by the growing body of content they must cover, and argue that they do not have time to teach reading and listening skills in addition to the facts and concepts of their own disciplines.

Herber (7) feels that if such teachers would use methods which differ from those they are now using and which have been used for a number of years at the elementary level, they could teach reading skills and subject matter content at the same time. He advocates using the following procedures:

..... vocabulary. study before reading;
identification of purpose for reading and
the skills to be used; guidance in applying
skills; assistance in reacting to and

the use of ideas gained from the reading; organization of students into different grouping patterns according to instructional purposes.

Listening-viewing centers are also used by elementary school teachers. Such centers consist of sources of sound, such as tape recorders, motion picture projectors, or record players, and visual sources such as books, pictures, slidefilms, or motion pictures. An elementary school teacher, using the self-contained classroom, often has such aids available in the classroom. At the secondary level, where teachers of different subjects often share classrooms, it is difficult if not impossible to set up permanent listening-viewing centers such as those which have been described.

There seemed to be an indication that combining reading and listening would benefit poor readers. Studies reviewed by Witty and Sizemore (11) indicated that presenting materials to a student through listening and reading simultaneously might help him to learn better. Additionally, the findings of Kraner (8) and Smith (10) indicated that such training might also be of benefit to the reading skills of a poor reader.

Population

At the Gillette Road Junior High School, the content areas are departmentalized, and homeroom groups are formed by ranking the students in the eighth grade according to scores on standardized tests of reading and intelligence. For the purposes of this experiment, three classes toward the lower end of the ranking were chosen, because many students in them were reading below grade level but were of average intelligence. There was a total of 77 students in the original group and, because of reasons unrelated to the experiment, 74 in the final group for which complete data were

Grouping

Prior to the experimental period, each of the students in the three social studies classes were given Form A of the Gray Oral Reading Test (6). Based on the "total passage scores" received on this test, the students in each class were ranked from highest to lowest in oral reading. Then each class was divided into high, middle, and low thirds according to oral reading ability, and the students in each third of the class were assigned at random to one of three experimental treatment groups. Each class, therefore, consisted of three approximately equal groups of students. Each group, in turn, consisted of students of high, middle, and low oral reading ability, as compared with the other students in the class.

Experimental procedures

Each of the three teachers followed the eighth grade curriculum prescribed by the school district and by New York State, and used *Study Lessons in Our Nation's History* (1) for his test.

There were two reasons for using *Study Lessons in Our Nation's History*. The teachers and students had not used it previously, and the teacher's guide and pupil materials of the study lessons are structured in such a way that they are equivalent to lesson plans. This allows the three teachers to cover identical course content during each day of the study with relative ease. This ensured that each lesson consisted of presenting key vocabulary words, setting a purpose for reading, and other procedures which helped incorporate elementary school methods into secondary school classes.

The Dale-Chall Readability Formula (3) was used to verify that each class consisted of students who would find difficulty in reading the social studies text. As measured by this formula, the text, *Study Lessons in Our Na-*

tion's History, has an average readability-level of 6.51.

For seven weeks, each social studies lesson (thirty school days actually comprised the experiment) consisted of a short review of previous learnings, the presentation and defining of key vocabulary words, the setting of a purpose for reading, a period of silent reading, and a class discussion of facts and concepts derived from the reading. At the point in the lesson when the students in each of the three classes were asked to read silently, they were divided into the three previously defined experimental groups.

The reading-listening group

The students in one group, designated as the reading-listening group, opened their texts to the day's lesson, put on headsets that were connected to a tape recorder, and followed the text as they listened to it being read to them. The tape recordings were prepared by the writer and ranged in rate from 150 to 175 words per minute. Soon after the study began, students in the Reading-Listening group were issued 3 x 5 cards along with the unit booklets that were their texts and were told to mask the lines of print beneath those they were hearing from the tape recording. This procedure enabled the teachers to prevent students from lagging behind or reading ahead of the tape.

The listening group

The second group of students in each of the three classes also put on headsets but were not allowed to follow along in the unit booklets. These students, who heard the same tapes as those who simultaneously read and listened, were labeled the listening group. The students in the listening group did no reading in social studies class except that which was presented on the chalkboard, on occasional vocabulary sheets, or in periodic quizzes.

The time spent in listening and in simultaneous listening-reading varied from lesson to lesson. The listening time of the daily lesson itself was usually between five and ten minutes. There were, however, other reading materials in the texts that were not introduced and for which no vocabulary was pretaught. All such readings were tape recorded and were assigned by the three teachers. Adding their time to that of the daily lesson generally made the total daily listening time about 15 to 20 minutes.

The reading group

The remaining students were issued unit booklets and were told to read the materials to which the other students were either listening or simultaneously reading and listening. These students, the reading group, were given the same amount of time to complete their reading as it took for the day's tape to be played.

The three teachers were asked to modify the suggested lesson plans. They were asked to use the unit booklets only for the silent reading part of the daily lesson. That is, the booklets were not in the students' possession while the teachers reviewed previous learnings, presented vocabulary, and set purposes for silent reading. The teachers were encouraged to use the chalkboard if they felt words and questions should be before the students as they read.

Additionally, although the study lessons contain exercises designed in themselves to teach and reinforce specific reading comprehension skills, these exercises were not used during the experiment except as oral questions posed by the teachers. Allowing the listening group access to the booklets would have been prejudicial to one of the major facets of the study.

The booklets were collected at the completion of the taped portion of the day's lesson, the headsets were discon-

nected and placed back in boxes, and the chair desks in the room were again arranged in rows. The teachers then led whole-class activities designed to supplement or reinforce facts and concepts that had been introduced in the setting of the purpose for reading or listening and explained during the presentation of the daily lesson.

Tests used to measure results

Social studies content knowledge was measured informally throughout the experiment by the three teachers. They used questions asked in the comprehension exercises of the Study Lesson booklets, short quizzes, and a limited number of homework assignments. No worksheet, quiz, or homework assignment was required of any student without being required of all students.

The more formal measures used to test social studies learning were parts of those published by the Follett Publishing Company (4) that were specifically designed to be used in connection with the units taught during the experiment. Two such units were taught, and the unit tests designed for them were administered as soon as they were completed. In order to help ensure that social studies content rather than reading ability was being measured, the unit tests were read aloud by the classroom teachers while the students followed along.

The students' scores on the two unit tests were summed and combined as the experiment's single measure of social studies achievement. Essay and map questions were eliminated from this final measure, since map study had not been emphasized during the units in question, and the grading of the essays would have introduced an unwanted element of subjectivity into the evaluation. In using only a post-test to measure social studies content, it was assumed that the prior social studies achievement of the students was distributed randomly throughout the

classes and treatment groups. The rationale for such an experimental design is given in Campbell and Stanley's (2) article in Gage's *Handbook of Research on Teaching*.

The other tests administered to the students in the three classes were designed to elicit information regarding changes in reading and listening skill. The pretests that were given were Form A of the Gray Oral Reading Test (6) Form 3A of STEP: Listening (9) and Form 1M, Survey E, of the Gates-MacGinitie Reading Tests (5). Equivalent forms of these three instruments were given at the completion of the experiment.

Analysis of the data

A three-way analysis of variance was calculated on each of the post-tests that was administered. This analysis determined whether there were statistically significant differences between the reading-listening, listening, or reading groups of students which resulted from the particular mode of presentation they had practiced during the experiment. That is, if reading and listening simultaneously to social studies content for seven weeks caused students to achieve higher scores on social studies tests than did listening or reading, the analysis of variance would show whether differences might have occurred by chance or whether their occurrence was statistically improbable. The analysis also showed the extent to which the experimental procedures were influenced by the class in which they were being conducted, or by the initial oral reading level of the participating students.

In addition to the analysis of variance of the post-tests, a statistical analysis of the gains between pretest and post-test scores was made. This analysis was done using the related *t* statistic, which indicates whether it is likely that observed gains or losses can be attributed to the experimental conditions

or whether they could have occurred by chance. For this analysis, the three main experimental groups of students, reading-listening, listening and reading, were examined in order to determine whether the students in them had made significant gains or losses during the experiment. Additionally, the pre-test and post-test scores of groups of ten students who had scored highest or lowest on the pretests were examined so that the gains of selected and carefully defined subgroups of students could be analyzed.

Summary of results

Because students had been assigned at random to the three treatment groups, the analysis of variance was performed only on the post-tests that were administered. The results of this analysis are as follows:

1. The mean scores of the three social studies classes differed significantly in oral reading, silent reading vocabulary, silent reading comprehension, and social studies achievement. The mean listening scores of the three classes were not significantly different. Since it was assumed that the classes would be different both before and after the experiment, the factor was analyzed in order to isolate its effects from others.

2. The three groups of students within each of the classes, formed on the basis of oral reading ability before students had been assigned at random to the treatment groups, were also assumed to be of different ability on the various post-tests. These groups were significantly different only in oral reading, silent reading vocabulary, and, in one class only, silent reading comprehension. The classes were of similar ability in social studies achievement and listening. Again, this factor was incorporated into the analysis in order to isolate its effects from others.

3. The writer had hypothesized that the reading-listening group of 25 students would achieve higher mean scores on some of the post-tests than the 25 in the listening group or the 24 in the reading group. The analysis of a post-test means, however, showed no significant differences on any variable among the three treatment groups.

4. The analysis of post-test mean scores also showed that the effects upon student achievement from the three experimental treatments had not been influenced significantly by the class of which students had been members or by the students' initial ability in oral reading. This finding enabled the

students without regard to the class in which they received instruction or to their initial oral reading ability.

At this point, then, the gains of groups of ten students who had achieved either highest or lowest on each of the pretests were examined. Publisher's norms showed that the mean oral reading grade equivalent of the total population was 7.0, that of the ten highest achievers in the reading-listening group was 9.3, in the listening group, 10.7, and in the reading group 11.2. The lowest ten in the reading-listening group achieved a grade equivalent of 3.85, in the listening group, 4.35, and in the reading group, 4.60.

The above levels are similar to the achievements of the students who comprised the highest or lowest achievers on the other pretests. The scores in silent reading vocabulary, expressed in percentiles, ranged from P⁸ for a group of low achievers to P⁶⁹ for a group of high achievers. Silent reading comprehension scores were also expressed in percentiles and were at levels similar to those in silent reading vocabulary.

Listening norms are expressed in percentile bands. The students in the low groups, according to listening ability, were significantly below, while students in the high groups were above the 50th percentile.

The pretest to post-test gains of the groups of ten students in the reading-listening, listening, or reading groups who scored highest or lowest on the pretests are reported as follows:

1. No significant changes occurred in oral reading ability among students who were initially high or low in this ability, regardless of the treatment group to which the students had been assigned.

2. Students in the listening group who were initially poor listeners (percentile band=12-26) increased in listening to a degree significant at the .01 level. Students in the listening group of initially high listening ability did not change significantly in listening, nor did high or low achievers who were members of the other two experimental groups.

3. All students initially low in silent reading vocabulary increased significantly in this skill, whether members of the reading-listening, listening, or reading groups. Students initially high in vocabulary in the three groups did not change significantly.

4. No significant change occurred in silent reading comprehension among students who were initially high or low in this ability.

5. The only significant change made by the full-sized presentational groups, as measured by pretest to post-test gains rather than the analysis of variance of post-tests, was that the students in the listening group made a significant gain ($p < .01$) in silent reading vocabulary.

Interpretation of results

It is not surprising that the three classes differed in oral reading, silent reading vocabulary, silent reading comprehension, and social studies achievement at the close of the experiment. Students had been assigned to the classes by guidance counselors during the preceding summer on the basis of previous standardized reading and intelligence test scores. Moreover, the entire eighth grade had been ranked and students assigned until reasonably sized homogeneous classes had been attained. The factor "class" was included in the data analysis, so that the expected differences among the three classes could be separated from differences caused by other factors.

According to post-test scores, the three classes were not significantly different in listening, a fact which is difficult to interpret. Since no groups of students changed significantly in listening, it is reasonable to conclude that the classes were similar prior to the study. Differences in listening were not, therefore, eliminated by the activities of the experiment. Either students did possess similar listening ability, or the STEP listening test is not powerful enough to discriminate adequately among relatively small groups of students.

The latter explanation seems less tenable in view of the fact that there were also no significant differences among the relatively small reading

groups within the three classes on the social studies content test that was administered orally. The lack of significant differences in listening among the classes and among reading groups within classes appears to reflect a true homogeneity as far as this skill is concerned.

The three classes were significantly different in average silent reading comprehension, but the reading groups within classes only differed significantly in one class on this variable. It seems reasonable to conclude that here the discriminating power of the test was adequate for measuring differences in class-sized groups, but not in groups comprised of one-third as many students. The alternative conclusion is that the groups within two of the classes were not significantly different in silent reading comprehension.

Again, a major reason for including the factor of reading groups within classes in the analysis was so that its effects could be isolated from those of the three modes of presentation. Although their analysis reflects certain significant differences among the classes and the groups within them, the factors of "class" and "groups within classes" did not interact significantly with the main experimental factors.

The three experimental treatments did not account for the appearance of differences among the groups of students who practiced them for seven weeks. Previous research had indicated that reading and listening simultaneously might aid poor readers in social studies. Such aid would have manifested itself in a higher mean score on the test of social studies content that was administered. The mean scores on this criterion indicated that all three modes of presentation were equally effective for the students in the three classes. What may have happened, however, is that much of the social studies content that was tested had

been learned during the whole-class discussions of the required readings, rather than from the readings themselves.

None of the three presentational modes had a significant effect upon the oral reading skills of students who had initially been good or poor in oral reading. The writer had hypothesized that the experience of simultaneously reading and listening to the pronunciation, inflection, and phrasing of a good reader would help a poor reader to improve his phrasing and his ability to attack and pronounce unfamiliar words.

The listening ability of students of initially good listening skill was not affected by any of the presentational modes. This is not surprising since no specific teaching of listening was incorporated into the design of the experiment. Students whose initial ability in listening was relatively poor, and who read or simultaneously read and listened, did not gain in listening skill either. Poor listeners in the listening group, however, made statistically significant gains in listening. These gains were also judged to be of practical value when they were examined in terms of the test publisher's norms. It appears that a poor listener's listening skill can be improved by 15 to 20 minutes of meaningful listening over a relatively short period of time. If exercises and study guides are included with this practice, it seems reasonable to expect even greater gains.

It is difficult to account for the gains in silent reading vocabulary made by the students in all three treatment groups with low scores on the vocabulary pretest and by the whole listening group. During the seven weeks of the experiment, 79 words were taught in conjunction with the two units that were covered. None of these words appeared among the 50 that comprised the post-test of silent reading vocabulary that was used, ruling out the pos-

sibility that specific teaching was done for the post-test words.

Three other possibilities suggest themselves to the writer. First, the effect of participating in an experiment may have influenced the students who achieved low scores on the vocabulary pretest, motivating them to do more reading of social studies material than had been their habit. Wide reading has long been considered an effective way to increase a student's reading vocabulary. It seems, however, that this effect would also have affected the students whose vocabulary scores were the highest on this pretest. Second, the effect upon test achievement from taking an equivalent form of the same instrument within seven weeks' time may have influenced the students' vocabulary scores. It seems, however, that such learning would not have taken place on just one of the instruments but on others as well.

Finally, it seems most likely to the investigator that the gains in vocabulary achieved by the students who were initially lowest in this skill came about as a result of the general emphasis placed on the learning of new words during the experiment. As was stated above, vocabulary teaching was an integral part of each day's lesson. From two to five words were introduced at the beginning of each class and were reinforced periodically with worksheets and quizzes. The words were always derived from the daily reading assignment and were important to each lesson's comprehension.

That the teaching of specific words related to American history should influence the learning of words in general may seem unlikely, but the fact remains that those students who most needed help in increasing their general vocabularies did receive substantial aid during the seven weeks of the experiment. That they did so, irrespective of the class they were in or to the mode of presentation to which they

had been assigned, strengthens the writer's conclusion that without taking time away from the facts and concepts prescribed by their curriculum, the teaching method that was followed during the experiment helped certain students to achieve substantial gains in their silent reading vocabularies.

The students who achieved the highest scores on the vocabulary pretest did not make significant gains in vocabulary. The significant average gain in silent reading vocabulary made by the 25 students in the listening group was probably caused by the magnitude of the gains made by the students who received poor scores on the pretest, rather than by the effect of having listened to social studies materials for seven weeks.

The experimental procedures did not cause any groups of students to gain significantly in silent reading comprehension. The writer originally hypothesized that simultaneously reading and listening to materials read aloud in such a way that words, phrases, and sentences were given their appropriate emphases, might help poor readers to comprehend subsequent reading more effectively. If students had been made directly responsible for comprehending the experimenter's written materials, instead of participating in a general discussion of questions posed by the teachers, some of the groups might have made significant gains in reading comprehension. Each lesson in *Study Lessons in Our Nation's History* contains exercises designed for the improvement of this skill, but the difficulty of duplicating these for the listening group made it undesirable to use them.

Recommendations for classroom practices

The three teachers who conducted the thirty lessons in this study had never formally taught vocabulary in the way they were asked to do during

the experiment. That they did so with ease, and produced the gains among the poor readers in their classes that were observed, seems to indicate a classroom practice that teachers with similar students might well emulate.

The three teachers had not previously used tape recordings of their text materials and were unaccustomed to forming their classes into separate instructional groups. They were able to make these adjustments without any major inconveniences. Throughout the weeks of the experiment, all three of them expressed satisfaction with the procedures, stating that the use of tapes was of real benefit to students who had not previously had the ability to participate in class activities because of their inability to keep up with the required reading.

If a teacher should decide to use the procedure of simultaneous reading and listening to a tape recorded textbook, it is recommended that specific comprehension exercises, such as those that accompany the daily Study Lessons, be used.

Using headsets and a tape recorder in eighth grade social studies classes and dividing into separate instructional groups was no problem at all. The students, among whom were a number who tended to be discipline problems, accepted the procedures without complaint. Some, known to their teachers as particularly poor readers, responded with enthusiasm to the reading-listening technique. These students stated that they felt as if they were really learning from the procedure. That scores on the tests that were administered do not validate the students' conclusions is unfortunate but should not be viewed as a definitive reason for not using the technique. If a student does as well through one teaching method as another but feels personally that one is better than the other for him, the method the student prefers should receive serious consideration.

The students in the three classes, who were characteristically quite vocal in their likes and dislikes, appeared not to tire of the experimental procedures, which, except for periods used for testing, were a part of every social studies class for seven weeks. The teachers and the writer did not observe any tendency on the part of the students to become bored or dissatisfied with any of the procedures. One teacher remarked that he would use the reading-listening technique in the future if tapes were available, but not every day of the week. This would appear to be wise. A teacher might better be selective in the making of tapes, using recordings only of reading selections that were particularly difficult, with students whose independent reading levels were such that reading the assigned text would be a frustrating experience, or with students whose scores on a listening test were far below grade level.

In conclusion, comparisons of pre-test and post-test normative data indicated that the limited but positive results of the investigation into the usefulness of reading-listening or listening in secondary school social studies classes proved to have practical as well as statistical significance. Moreover, teachers and students both seemed to feel that the procedures have merit. With the incorporation of the recommendations that have been made to augment their effectiveness, the writer believes that there is a place for the techniques in the teaching methods of junior and senior high school teachers.

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New Correlates of Readability and Listenability

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THERE ARE THREE STEPS in investigating the correlates of reading difficulty. First, investigators order a number of reading materials according to a criterion of difficulty, usually comprehension; then, they analyze the materials for internal, linguistic factors which predict variation in difficulty; and third, they combine the factors which are most predictive of difficulty into a multiple regression formula. Research

The author is indebted to the following persons who assisted him: N. L. Gage, John Bormuth, Carl Rinne, E. B. Coleman, and Barbara Rosenshine.

by this paradigm has been fruitful, and the findings have been remarkably consistent for psychological research. Almost without exception, the studies have shown that difficult reading material contains longer words and longer sentences. Recent studies which have used refined measurement techniques enable us to combine a variety of additional linguistic variables into prediction equations which correlate .9 or better with the difficulty of the passages (1, 2).

In this type of research, the passages are usually short-ranging (from 150 to 300 words), differ widely in content, and represent a range of difficulty of eight years or more. Traditional readability research might be labeled *vertical studies*, because the difficulty of the passages ranges from high to low. Coleman (2) has pointed out that the predictor variables developed from such vertical studies are very useful in distinguishing among passages that range widely, such as high school and grammar school prose.

But a more difficult problem is the development of measures which will distinguish between the effectiveness of essentially similar passages. For example, if five fifth grade American History texts are roughly equal in letters per word and words per sentence, can the teacher assume that the texts will be equally comprehensible? If not, then what measures will identify the effective and ineffective texts? The development of measures which distinguish between similar material might be termed studies of *horizontal readability*. This is a report of three studies of horizontal readability.

In the first study, Peterson (13) took two 950-word passages from social studies textbooks—one on feudalism and the other on imperialism—and rewrote each of the original passages into an "organized" version and a "human interest" version. The subjects were seventh grade students.

A second researcher, Ray Funkhouser, at the Institute for Communicative Research at Stanford University (7, 8), studied the problems in communicating science material to non-scientists. The experimental variable in this study was a set of 10 different eight-page articles on enzymology written for an audience of non-specialists. Nine of the articles were written by professional science writers, and the tenth was written by a biochemist. The subjects were first- and second-year college students who were not majoring in science.

In a third study (14, 15), 40 twelfth grade social studies teachers gave two 15-minute lectures to their students on successive days: first on Yugoslavia and then on Thailand. All lectures were prepared from identical material: 2500-word articles taken from the *Atlantic* magazine. There is some question about including a study of lecturing, but the research summaries by Klare (11) and Travers (18) indicate that readability and listenability are highly correlated.

In each of the three studies, all students took a common test, based on the main ideas of the original material. All three investigators adjusted the students' test scores for a measure of student knowledge or aptitude, and in addition, Funkhouser (7, 8) and Rosenshine (14) also adjusted the students' post-test scores for the relevance of the material in the article they read or the lecture they heard to the items on the common test.

In all three studies, although the passages contained similar material and were intended for the same audience, there were significant differences in the effectiveness of these passages as measured by the students' adjusted comprehension scores. Peterson (13) found, as she predicted, that the students who read the organized version or the human interest version had significantly higher adjusted test scores

on a common test than those who read the original passages on feudalism and imperialism. The ten articles on enzymology, the lectures on Yugoslavia, and the lectures on Thailand all differed significantly in their effectiveness.

Results

What variables accounted for these differences? First, some negative findings. In all of these studies, the traditional readability variables and the traditional readability formulas *did not* discriminate between the high comprehension producing passages and the low comprehension-producing passages. In all three studies, there were no significant differences between the passages on measures of word length, word difficulty, and sentence length. Funkhouser (8) found that three readability measures, such as the Flesch (5) and the Dale-Chall (3), and three versions of the "cloze score" (17) did have moderate and consistent correlations with the adjusted measure of comprehension. None of the correlations, however, was statistically significant. In addition, Peterson's materials did not differ in the number of personal pronouns or the number of personal sentences, Funkhouser found no significant differences in words per paragraph, type-token ratio, percent of lines of analogy, percent of lines of definition, and percent of lines of non-sentence material. In the lectures on Yugoslavia and Thailand (14) there were no significant differences in the length and structure of independent clause units, frequency and proportion of prepositional phrases, and in the use of personal reference pronouns, passive verbs, and awkward and fragmented sentences.

There were, however, five promising variables which emerged from this research. They are vagueness, explaining links, frequency of examples, the example-rule pattern, and some-

thing which might be labeled "irrelevancy."

Vagueness. Page (12), and Hiller (9) have developed computer programs to count the frequencies of certain stylistic elements in essays. They have found that the "essay grades," developed from the computer count of these stylistic elements, correlated significantly with the grades assigned to the same essays by humans (9, 12). One of the categories which Hiller developed for the analysis of essays was labeled *vagueness* and defined as a writing style characterized by an excessive proportion of qualification, haziness, and ambiguity.

Hiller, et al (10) expanded the list of words and phrases taken to indicate vagueness and used a computer to count the proportion of vagueness words and phrases in 32 of the Yugoslavia lectures and 23 of the Thailand lectures. Hiller, et al found that the proportion of words classified in the subcategory *indeterminate qualifiers* and the proportion of words classified as *probability* had significant negative correlations with the difficulty of both the Yugoslavia and the Thailand lectures. Indeterminate qualifiers are words such as *rather, very, any number of, more or less, little, few, some, pretty much, and quite a bit*. Probability words include *could be, might, possibly, sometimes, more often than not, may, usually, likelihood, and most of the time*. The high-scoring lectures, then, had fewer indeterminate qualifiers and probability words.

Hiller's findings indicate that although the use of short words usually correlates positively with the reading ease, there are some very short words which more often than not, might possibly detract very much from readability.

Explaining links. In my analysis of the Yugoslavia and Thailand lectures (14, 15), I assessed the frequency of

explanation by counting explaining links, that is, propositions and conjunctions which indicated that the cause, result, or means of an event or idea is being presented. Explaining links are words and phrases such as *because, in order to, if . . . then, therefore, consequently, and by means of*, as well as specified instances of words such as *since, by, through, and so*. The high-scoring lectures on Yugoslavia and on Thailand used more of these explaining links in each of three units of measure: per lecture, per minute, and per 100 words.

The identification of explaining links may be one step in developing a measure of the connectiveness of material. Words such as these explaining links may function to link phrases either within or between sentences so that a phrase or clause containing an explaining link elaborates and expands upon another phrase or sentence. This special linkage may be illustrated by the following three sentences which are almost identical:

1. The Chinese dominate Bangkok's economy, *and* they are a threat.
2. The Chinese dominate Bangkok's economy, *but* they are a threat.
3. The Chinese dominate Bangkok's economy; *therefore*, they are a threat.

The third sentence may be the easiest to comprehend because it contains the explaining link, *therefore*, instead of a conjunction such as *and* or *but*. Different types of explaining links also seem to be interchangeable as in the following three examples:

1. The Chinese dominate Bangkok's economy; *therefore* they are a threat. (Statement of consequence)
2. The Chinese are a threat *because* they dominate Bangkok's economy. (Statement of cause)
3. *By* dominating Bangkok's economy, the Chinese are a threat (Statement of means)

It should be noted that the explaining links which were counted in this were only a convenience for

identifying "explaining sentences." There is no claim that the words selected as explaining links represent all the words in this category which could be selected. One next step will be to investigate this category more closely, eliminating words which are not true explaining links, and determining whether certain nouns and verbs can be included within this category.

I also counted the number of explaining links in the passages developed by Peterson and found that the frequency of explaining links did discriminate between the high-scoring and low-scoring passages on imperialism, but that the differences were not significant for the passages on feudalism.

Examples. Funkhouser (7) found that for the material on enzymology, the proportion of lines giving examples was a significant positive correlate of effectiveness. In the lectures on Yugoslavia and Thailand, the number of examples was not significant. Such a contrast makes sense, because enzymology appears to be a more difficult topic to the reader than the political and economic affairs of Yugoslavia, and because the science articles were rated by the Flesch reading ease formula as more difficult than the social studies lectures. These results appear to indicate that the frequency of examples becomes more important as the conceptual difficulty of the material increases.

Rule and example pattern. Although the high-scoring lectures on Yugoslavia and Thailand did not contain more examples or sections of examples, they differed from the low-scoring lectures in the pattern of examples. The high-scoring lectures used a summarizing rule twice, both before and after a series of examples (15).

For example, when the high-scoring lecturers were discussing Yugoslavia's problems with inflation, they would

begin with a general statement such as "Tito is attempting to deal with the problems of inflation," or "Tito is attempting to curb inflation." The high-scoring lectures would follow this general statement with a number of examples, and close by restating the general statement, using sentences such as, "So you can see that they are dealing with the problem of inflation." Some high-scoring lecturers restated the principle indirectly by beginning the next sentence with "In addition to the problem of inflation, Yugoslavia also. . . ." In contrast, the low-scoring lecturers used only one summary statement, usually before the series of examples (15).

These results indicate that a pattern which presents a structuring statement first, follows it with details, and concludes with a structuring statement is more effective than either an inductive or a deductive pattern of explanation. An extension of this idea might be that some paragraphs would be more effective if they began and ended with a topic sentence.

Irrelevancy. Although Funkhouser found that increased redundancy of examples is a positive correlate of effectiveness, his results also suggest that it is not true of all redundancy; in his study, the number of lines relevant to each test item had a negative correlation with effectiveness. That is, the high scoring articles had fewer lines related to an item on the test. Although this is surprising, it is not an isolated finding. Desirato, et al (4) reduced the length of lectures, and Fletcher (6) reduced the length of film commentary by eliminating digressions and irrelevancy. In both cases, the reduction in material resulted in significantly increased comprehension as measured by test scores.

The existence of irrelevancy will complicate future research in this area because irrelevancy will not be identified using the current readability for-

mulas. In all three studies, the number of words per sentence was not a significant correlate. So irrelevancy expresses itself by extra sentences, not by extra long sentences. Irrelevant material may also contain short words, an abundance of explaining links, and even paragraphs which use the rule-example-rule pattern.

Implications

There are two general conclusions which can be drawn from these three horizontal or limited-range studies. The first is that when relatively long passages deal with similar material and are intended for the same audience, the passages still differ in their difficulty or comprehensibility. In these cases, however, the readability formulas are not particularly valid measures for distinguishing between the effective and ineffective passages.

The second conclusion is that the measures which have been related to the effectiveness of similar passages were developed by focusing upon the cognitive function of key words and phrases. The words and phrases in each of the significant findings are not linguistically or structurally similar. For example, the words classified under indeterminate qualifiers include such structurally different words as *few*, *any great extent*, and *more or less*. Yet, these words share the cognitive function of being vague qualifiers. The words classified as explaining links include *because*, *therefore*, *by means of*, and *in order to*. Although these words are structurally dissimilar, they do have a cognitive similarity: they all introduce a clause or phrase which states a means, reason, or consequence for the idea expressed in another clause. The results are the same in the case of examples. We would be hard put to find a structural difference between a sentence giving an example, and a sentence which introduces or summarizes the topic. These results

suggest that in the study of similar passages, attempts to discriminate between effective and ineffective presentations by counting only different parts of speech may have limited promise. More significant results may be obtained by also focusing upon the cognitive function of words and phrases.

The suggestion that we consider the cognitive as well as the linguistic function of words and phrases might also be developed from the research of Coleman (2) and Bormuth. In Coleman's research, adverbs of time and location are classified separately from other adverbs. Coleman found that such a distinction has research merit. But Coleman's categories require separate classifications for the adverb *now* and for the prepositional phrase *at the present time*, and separate classifications for *usually* and for *most of the time*. Bormuth (personal communication) has suggested that all four examples be classified together as time adverbials. If the proportion of time adverbials in a communication is a significant correlate of reading ease, then we may obtain better research results if we classify all words dealing with time and location together, regardless of their structural use. For example, if the words "yesterday" and "today" receive special attention when they are used as adverbs, perhaps these words should receive the same attention when they are used as nouns.

The cognitive approach to the study of reading difficulty suggests not only combinations, but also new divisions of structural categories. In Coleman's report, he cites the following eight words as examples of the subclass pre-determiners: *each, all, both, half, any, some, most, and few*. The first four words are specific, the last four words—*any, some, most, and few*—were among the words selected by Hiller as indeterminate qualifiers. In future studies, separate classifications of pre-determiners into specific and indeter-

minate may yield productive results. For such research, however, we will have to use passages longer than 200 words.

Conclusions

This new research, horizontal studies of readability, consists of the analysis of essentially similar passages and focuses upon classifying words and phrases according to their cognitive similarity. This research has produced promising potential correlates of reading difficulty, such as vagueness words, explaining links, redundancy of examples, and the rule-example-rule pattern. Experimental research will be necessary to clarify these findings. This experimental research could involve inserting and deleting explaining links and vagueness words from selected passages.

It is too early to make definite recommendations at this point, but when teachers have to choose among similar texts with relatively similar readability levels, the teacher might be aided in his choice by counting the proportion of vagueness words, rule-example-rule pattern, and explaining links in these texts.

Future research in this area will be far from simple. In both experimental and correlative studies, some of these results will fail to replicate, and new variables will emerge that will be even more bewildering. Undoubtedly, there will be complex interactions among cognitive and linguistic variables, relationships with effectiveness which are not linear, and interactions and correlations which change as the material becomes more complex. There is a need for more horizontal studies such as these.

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Empirical Determination of the Instructional Reading Level*

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TEACHERS ARE OFTEN admonished to give the child instruction only from materials which are suitable for him. Thorndike (7) first suggested standards of suitability which have come to be adopted in roughly this form. Materials are said to be suitable for use in the child's independent, unsupervised study if he can correctly answer at least 90 percent of the comprehension questions asked him about the materials after he has studied them. The materials are regarded as suitable for use in supervised instruction if he can answer 75 percent or more of the questions. When the child can answer fewer than 75 percent of the questions, study of the materials is thought to result in frustrations which cause the child to develop negative attitudes toward instruction. Since a number of well-known authors (see Betts (1), Bond and Tinker (2), and Harris (5)) advocate the use of these standards, presumably the standards are widely used by teacher. The problem is that neither Thorndike nor anyone known to the author has given either logical or empirical reasons as to why these standards should be accepted.

This problem is potentially too seri-

*The author acknowledges with appreciation the contributions made by Paul Berger, University of Minnesota, who constructed the materials and gathered the data for this study.

ous to be left unattended. To illustrate, materials might be difficult just because they contain information which is new to a reader. Barring a child from reading difficult materials might actually bar him from studying the very materials from which he would learn the most, thus creating boredom by forcing him to read dull, repetitious materials. Conversely, until we have definite evidence to the contrary, we cannot be certain that even materials on which children can answer 90 percent of the questions are easy enough to prevent children from becoming frustrated and acquiring the negative attitudes which cause them to dislike and reject study.

This paper reports the first of a series of studies designed to investigate this problem. The present study asks simply if there is some range of difficulty which maximizes the amount of information students gain as a consequence of reading instructional materials. Other studies the author currently has under way are investigating the difficulty levels at which student interest is maximized.

Procedure

The general pattern of this study involved these operations. First, students were given a cloze test in order to form pairs of students matched in reading ability. Second, one member of each pair was given a cloze readability test over a passage to determine the difficulty of the passage for that pair of students. Third, the other member of the pair was used to determine how much information that pair gained by reading the passage. He first tried to guess the answers for a multiple choice test made from the passage and then later read the passage and took the same test again. Information gain was determined by subtracting his first score from the score he made the second time he took the test. The information gained by a pair of students

was then plotted against the cloze difficulty of that passage for that pair of students to determine the shape of the curve.

The cloze test used to match the pairs of students was made from a 263-word passage taken from an elementary psychology textbook by Kretch and Crutchfield (6). A 52-item cloze test was made from this passage by deleting every fifth word from the passage and replacing the deleted words with underlined blanks of 15 typewriter spaces. The students were told how the test was made and that their task was to figure out what word was left out of each blank and to write their response in the blank. Responses were scored correct only when they exactly matched the words deleted, ignoring misspellings which did not otherwise make the response ambiguous. The students were ranked from high to low on the basis of their scores and then divided into pairs with a member of each successive pair of students randomly assigned to each of the two groups designated hereafter as groups y and z.

A cloze readability test and a multiple choice comprehension test was made for each of two passages designated A and B. Passage A contained 469 words, and passage B contained 398 words. Each passage described in nontechnical language a psychological experiment. Five cloze readability test forms were made for each passage by deleting words 1, 6, 11, etc., to make the first form, words 2, 7, 12, etc., to make the second, and so on until all of the five possible forms had been made. These forms were later randomly assigned to subjects, so that all five forms were used equally often. The multiple choice tests made from passage A contained 34 items, and the one made from passage B contained 39. Each item contained four alternative responses. The comprehension tests

underwent three editorial revisions, each time the tests were tried out on small groups of students. When these tests were scored, the scores were corrected for guessing by subtracting one-third the number of incorrect responses from the number correct. The reliabilities of the cloze readability tests, pooling all five forms in a single split-half correlation, were .92 and .89 for passages A and B, respectively. The reliabilities of the comprehension tests for passages A and B were .84 and .86, respectively. Both sets of reliabilities were calculated using the data reported in this study, the scores from the second administration of the comprehension test being the ones used in that case. All reliability correlations were corrected for test length.

This study was designed to partially replicate its findings and to make maximum use of student testing time by using two different sets of passages and tests with the same set of students. Table 1 shows the order in which the tests were administered. The test sessions were always at least a week apart, with none spaced more than two weeks apart. No time limit was imposed on any of the tests. Using this

that pair, and the comprehension scores of member x were used to determine the information the pair gained from reading passage A.

Originally it was planned to use just second year junior college students in the study. It proved necessary, however, to use students ranging from the third grade through graduate level in order to obtain a sufficient range of cloze difficulty scores. A total of 130 pairs of students were tested, 25 pairs in grade 3, 23 in grade 5, 15 in grade 7, 28 in grade 11, 24 in junior college, and 15 pairs enrolled in a graduate course. Because of absences, the data presented for passage A are based on 129 pairs and those for passage B on 125 pairs.

Analysis and results

All scores were converted to percentage scores, and then the cloze difficulty score for each pair was correlated with the information gain score. Third degree polynomial curves were fitted to the data yielding a multiple correlation .69 on passage A and a correlation of .62 on passage B. The multiple correlations were calculated by determining the multiple correlations

Table 1
Design of Test Administration Schedule

Group	Test Session		
	1	2	3
x	Matching Test	Comprehension A and Cloze B	Read A and Comprehension A
y	Matching Test	Comprehension B and Cloze A	Read B and Comprehension B

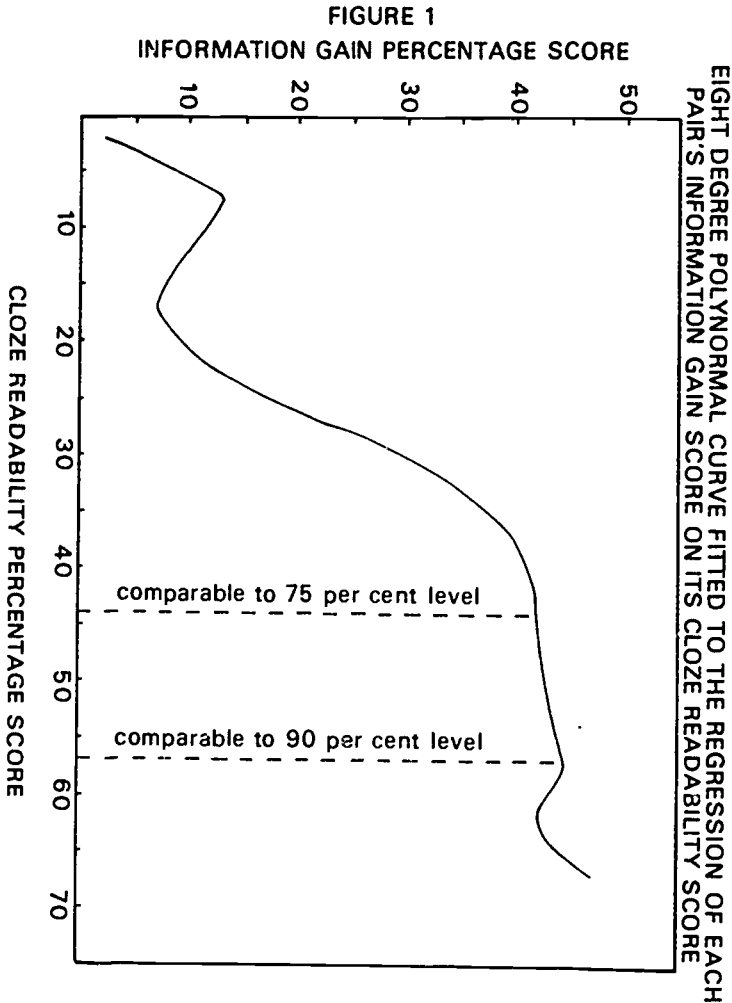
testing design, the cloze score of member x of each pair was used to determine the cloze difficulty of passage B for his pair, while the two comprehension scores of member y were used to determine the information that pair gained as a consequence of reading passage B. Conversely, the cloze score of member y was used to determine cloze difficulty of passage A for

between the information gain scores and the cloze difficulty scores, their squares, and their cubes. Only the linear and quadratic terms contributed significant amounts of variance to these correlations.

In order to determine the shapes of the curves relating information gain to cloze difficulty, eighth degree polynomial curves were fitted to both the data

from passage A and passage B. These curves were highly similar, having a correlation of .95 over the range of observed scores. In order to show the general shape of the relationship between information gain and cloze difficulty, the two sets of data were combined, and a single eighth degree polynomial curve was fitted to the data. This curve is shown in Figure 1. The

curve shows that the pairs of students who made scores of less than 17 percent on cloze readability tests on the passages, also tended to exhibit little gain in information when they read the passages. But for pairs making cloze readability scores in the range between 17 and 37 percent, there was a sharp increase in the information gained. As pairs made still higher cloze read-



Discussion

ability scores, their information gain scores tended to level off, with, perhaps, some slight tendency to increase.

In order to assess the fit of this curve to the data, the scores were divided into 14 intervals on the cloze scale and the mean gain scores calculated at each interval. Table 2 shows these data. Note that nearly all of these means fall close to the curve. None of the differences between pairs of interval means from the two different passages was significant when *t*-tests were applied. Nor did one set of means tend to be consistently higher than the other set. While 8 of the 14 differences favored passage B, this result, when the sign test was applied, was not significant, and there appeared to be no consistent tendency for the differences between the curves to concentrate just in one segment of the curve. Hence, the two different sets

It appears from these data that it may be possible to establish fairly definite standards of what is or is not a passage suitable for use by a child. These data seem to show that a student can gain very little information from studying materials on which his cloze readability score is below 37 percent, and that using materials much easier than the 37 percent level will permit the child to acquire only slightly more knowledge while reading them. These results, however, should be regarded as preliminary. Only two passages were used, and both of those were quite similar in difficulty. Further, it is not certain how well these results will generalize to comprehension tests made by other test writers.

The question of whether the traditional 75 and 90 percent levels mentioned at the beginning of this report are adequate can be only partially answered from these data, Bornuth (3, 4) found that the cloze readability test scores comparable to these two levels were 44 and 57 percent, respectively. These levels are shown on Figure 1 by the broken vertical lines. It can be seen from this figure that students who are given instruction from materials at one of these levels gain little more information than students given instruction from materials at the other level. Both levels seem to result in near maximum information gain.

The question of whether the 44 and 57 percent cloze readability criteria are desirable, however, cannot be resolved without finding out how the difficulty of materials influences students' interests and attitudes toward the materials. It may be that the 44 or 75 percent criterion is too stringent, and that materials having cloze or comprehension test readabilities as low as 37 or 65 percent, respectively, may be perfectly suitable for students when both inter-

Table 2

Mean of the Information Gain Scores in Each Interval of the Cloze Difficulty Scores

Cloze Difficulty Interval	Mean Gain Score			
	Passage A		Passage B	
Number	Mean	Number	Mean	
0-4	7	.022	3	.024
5-9	9	.123	4	.121
10-14	10	.082	9	.149
15-19	10	.005	9	.100
20-24	8	.107	5	.178
25-29	3	.243	19	.218
30-34	13	.304	11	.389
35-39	5	.181	14	.442
40-44	5	.474	9	.429
45-49	15	.407	10	.451
50-54	16	.422	20	.439
55-59	12	.426	6	.519
60-64	12	.442	4	.354
65-69	4	.472	2	.470

of materials seemed to yield roughly identical results. Where the means showed fairly large differences, the number of subjects on which the means were based tended to be small, suggesting that the differences were to this source of instability.

est and information gain are considered. Similarly, there is presently no way to be sure that passages on which a student scores above the cloze and comprehension test readability criterion scores of 57 and 90 percent, respectively, are not so simple to the student that he rejects them as being insipid and an insult to his intelligence. Finally, there is no reason to think that the criterion scores will necessarily be the same for students of all ages, on passages at all levels of difficulty, and on passages on all topics. Obviously this topic calls for a great deal more research.

On cloze test theory

These data are also relevant to the question of whether cloze tests measure the *redundancy* of the passages from which they are made—an important issue in cloze test theory. Weaver and Kingston (8), for example, assert that cloze tests are largely a measure of redundancy but fail to make clear in just what sense they are using the term *redundancy*. In its most rigorous sense, redundancy refers to the frequencies with which patterns of letters, words, and parts of speech occur in the language. It is a logical absurdity to assert that cloze tests measure the frequencies of occurrence of anything except the subject's responses. What they may have meant was that cloze tests measure either the subject's prior knowledge of the information contained in a passage or the familiarity of the language patterns to the subject. The present study shows rather decisively that scores on cloze tests do *not* depend solely upon a subject's prior knowledge of the content of a passage. As cloze scores increased, information gain increased. Further, scores on the comprehension test administered before the subjects had read the passage had correlations of .09 and .11 with cloze scores. These correlations were not signifi-

cantly different from zero at the .05 level. If cloze scores do reflect the subject's prior knowledge of the information in the passages, the effect seemed so weak as to be negligible in the present study.

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A Comparative Study of the Validity of the Botel Reading Inventory and Selected Standardized Tests

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"TESTS ARE . . . USED AS SUBSTITUTES for perhaps less convenient, more difficult, or otherwise cumbersome modes of measurement and evaluation" (6).

The problem of testing pupils to find their instructional levels in reading is a case in point. Ideally, such a determination should be made directly in the materials themselves. Given the fact that basal reading materials are scaled

into carefully controlled sequences, and given the generally accepted notion that pupils ought to be reading with a certain minimum degree of comprehension and oral reading fluency, such an evaluation can be readily made if there is sufficient time. Each pupil would read, orally and silently, random passages at a number of levels of difficulty until he performed with the required degree of success. The question of convenience and difficulty for the classroom teacher, however, is very much a problem. With 25 to 35 pupils in a class, many teachers believe that there is insufficient time to prepare such a test and to evaluate pupils in this ideal way.

Where the performance of pupils cannot be evaluated directly in their materials to find their level, what test should be substituted? For some, this question is answered simply: Test them on an informal reading inventory. An informal reading inventory is, after all, a series of samples from a particular series of graded basal readers. By having pupils read silently and aloud, and by having them respond to questions based on the reading, it is possible to determine the levels at which the desired fluency is obtained by the pupils. They are then given materials to read at this level.

There are at least four problems that need to be considered concerning the validity of an informal reading inventory. The informal reading inventory may not be comprised of a good set of samples. The samples may be taken from a series not actually to be used for instruction. The questions used to measure comprehension may vary in difficulty, depending on the formulator. The notions of the examiners may vary with respect to the degree of fluency and comprehension needed to establish the pupil's instructional level.

The four problems posed are valid questions which have usually been

ignored in developing and using informal reading inventories. Yet, such queries suggest the complexity of the problem of placement of pupils if anything other than the instructional materials themselves are used to pace pupils at the right level. Furthermore, they indicate the need to establish the extent of validity for instruments that purport to determine the instructional level of pupils. The informal reading inventory may not be exempted from the requirement of other tests that its validity (and reliability) must be determined.

Purpose of the study

It was the main purpose of this study to determine the extent of relationship of the Botel (2) Reading Inventory (Forms A and B), as well as several standardized tests—the California Reading Test in Grade 2 (3), the average of the reading subtests of the Iowa Tests of Basic Skills in Grade 3 (5), and the STEP Tests in grades 4-6 (7), to the instructional reading level of pupils in grades 1 to 6. Some evidence would thus be provided with respect to the concurrent validity of these tests. The instructional reading level or criterion in this study is the placement of pupils in their basal readers at the time the several tests were administered. The validity of the criterion is thoroughly discussed later under "Procedures."

A second purpose of this study was to determine the relationship of the Botel Reading Inventory to the standardized silent reading tests used in this study, thus providing some evidence with respect to the congruent validity of these tests.

Hypotheses

1. There is no significant relationship between the Botel Reading Inventory raw scores and the criterion.
2. There is no significant relation-

ship between the several standardized tests grade equivalent scores and the criterion.

3. There is no significant difference between the relationship of the Botel Reading Inventory with the criterion and the standardized tests with the criterion.

4. There is no significant relationship between the Botel Reading Inventory raw scores and the standardized reading tests grade equivalent scores.

5. There is no significant difference between the Botel Reading Inventory instructional level scores and the standardized silent reading test grade equivalent scores in their relative ability to place a pupil at his instructional reading level.

Procedures

Establishing a valid criterion. According to Kerlinger (6), "The single greatest difficulty of prediction validation is the criterion. Often criteria don't exist or validity is doubtful." Certainly the same thing can be said of the criterion in concurrent validity studies. In connection with this study of the validity of the Botel Reading Inventory (Forms A and B) and various standardized reading tests, an attempt was made to carefully establish the most valid criterion possible. This was done by selecting a school for the validation study which carefully places its pupils in graded readers at their instructional levels. From the preprimer level on, pupils are advanced from one reading level to another based upon their mastery of earlier levels. Mastery is established when the pupil can read aloud with 95 percent or better fluency on the average, and with 75 percent or better comprehension on the average in the books they have completed. A description of this method will be found in *How To Teach Read-*

ing (1). The procedure is called the Cooperative Checkout.

In the case of the Penn Valley School used in this study, the principal, Dorothy Ingalls, had checked and approved the advancement of each pupil from instructional level to instructional level. Each pupil's advancement was based on his observed fluency and comprehension in his basal readers and workbooks following the standards described above. In other words, pupils in the Penn Valley School may be said to be reading at their proper instructional levels.

To further establish the validity of this criterion, two further checks were made by the investigator. First, at his request, a record was kept by each teacher for one semester of the percentage of accuracy of pupils on all workbook exercises in their reading program. In every case the average pupil-performance in these workbook pages (which were completed independently by the pupil) was 75 percent or higher. Second, the investigator checked each pupil's oral reading fluency in stories they had not been exposed to, immediately following those they were working on currently. In each case, the pupil was able to read orally at sight with 95 percent fluency or better.

While correct placement was confirmed for those pupils reading below grade level, those reading at grade level and above presented a problem. For, in some classrooms, pupils who could read above grade level were not advanced to these higher levels. And in no case were pupils allowed to read more than one grade level beyond grade placement in the basal reader program. (Able readers, however, were unrestricted in their choice of library books.) The effect of this restriction of placement in basal readers

from the point of view of this study is to limit the effectiveness of the criterion for those reading at grade level and beyond.

Thus, for pupils who are reading below grade level and, to a lesser extent, for those reading at and above grade level, we have established the correctness of their placement in basal readers. This serves as a valid criterion for determining the relative power of several tests to predict the correct placement of pupils.

Two basic types of comparisons were made among the variables: correlations and matching. (All tests were administered by the classroom teachers in early February 1967.)

Correlations. All reading tests were correlated (using the Pearsonian, product-moment correlation) with the criterion described earlier—the instructional reading level of the pupils. Further, the Botel Reading Inventory (Forms A and B) were correlated with the standardized tests to provide information on the congruent validity of the Botel Reading Inventory.

In the case of the criterion, the score used was grade level in tenths of a year depending upon how far pupils had advanced in the Ginn readers which were used as basal in the Penn Valley School.

Matching. The instructional levels given by the Botel Reading Inventory (Forms A and B) and the grade equivalent scores of the standardized tests were compared with the criterion on the basis of the extent of match. That is, the extent to which each test placed pupils at, above, and below their instructional levels was mapped out. The Botel Reading Inventory provides a table in which the instructional levels of the pupils are given. In the case of the standardized tests the following table was used to convert

the grade equivalent score to an instructional reading level score:

Grade Equivalent Score	Instructional Reading Level
1.0-1.2	Preprimer
1.3-1.5	Primer
1.6-1.9	1 st
2.0-2.4	2 nd
2.5-2.9	2 nd
3.0-3.4	3 rd
3.5-3.9	3 rd
4.0-4.9	4
5.0-5.9	5
6.0-6.9	6
7.0-±	7

(Since the STEP tests do not provide a grade equivalent score, these had to be determined. The method used was to regard the mean score at each grade level given in the table of norms as having the grade equivalent designation for the time of the year the test was administered to the norming group. Intermediate points were then determined, assuming average growth of pupils to be regular throughout the ten months in which school is in session.)

Correlational findings

Correlations found between the Botel Reading Inventory (Forms A and B) and the standardized tests with the criterion are shown in Tables 1 and 2. It will be seen that the tests were highly correlated with the criterion.

Table 1

Correlation¹⁻² of the performance of pupils using their raw scores on the Botel Reading Inventory Forms (A and B) with their reading instructional levels

Grade	N	\bar{M}		SD		r	
		A	B	A	B	A	B
2	103	136.1	140.4	58.1	60.0	.95	.95
3	127	184.2	187.6	36.9	36.2	.82	.86
4	97	217.2	222.1	21.8	20.2	.86	.84
5	111	229.1	230.1	19.8	19.7	.84	.86
6	103	239.5	240.0	14.5	14.6	.74	.73

Inspection of the r's in Tables 1 and 2 suggest that the r's between the Botel Reading Inventory (Forms A

Table 2

Correlation^{1,2} of the performance of pupils using their grade equivalent scores³ on the indicated standardized tests with their reading instructional levels

Grade	Test	N	\bar{M}	SD	r
2	California	103	2.9	.94	.92
3	Iowa	127	3.9	.92	.81
4	STEP	97	5.4	1.9	.66
5	STEP	111	6.1	2.0	.63
6	STEP	103	7.4	2.1	.51

¹BMDO3D—Correlation with item deletion—version of March 1, 1966. Health Sciences Computing Facility, UCLA.

²All r's are significant at the .001 level.

³The lack of raw scores for the standardized tests may have lowered the magnitude of the r's.

and B) and the criterion might be significantly greater than the r's between the standardized tests and the criterion. These differences were compared by the "t" test (4: 190) and the results recorded in Tables 3 and 4. (Since grade equivalent scores were used for the standardized tests rather than raw scores as in the case of the

Table 3

Comparison of r's between 1) Botel Reading Inventory, Form A and the criterion, and 2) the standardized reading tests and the criterion

Grade	N	Standardized		t
		Botel Form A	Silent Reading Test	
2	101	.946	.922	2.126 ¹
3	127	.820	.807	.479 ²
4	97	.863	.657	4.886 ³
5	111	.837	.633	4.315 ³
6	103	.737	.510	3.600 ³

Table 5

Correlations of Botel Reading Inventory (Forms A and B) with Selected Standardized Reading Tests in grades 2-6*

Grade	N	Standardized Silent Reading Tests	Botel	
			Form A	Form B
2	103	California Reading Test	.93	.93
3	127	Iowa Reading Test	.80	.81
4	97	STEP-Reading	.65	.65
5	111	STEP-Reading	.60	.59
6	103	STEP-Reading	.55	.55

* All r's are significant at the .01 level of confidence

Table 4

Comparison of r's between 1) Botel Reading Inventory, Form B, and the criterion, and 2) the standardized reading tests and the criterion

Grade	N	Standardized		t
		Botel Form B	Silent Reading Test	
2	101	.951	.922	2.669 ¹
3	127	.858	.807	1.924 ²
4	97	.840	.657	4.088 ³
5	111	.859	.633	5.216 ³
6	103	.728	.510	3.709 ³

¹ Significant at the .05 level

² Not significant

³ Significant at the .01 level

Botel Reading Inventory, this may have resulted in a lower magnitude of r's for the standardized tests than was actually found.)

The results of this comparison indicate that except for grade 3 in which no significant difference was found, all comparisons show that the Botel scores relate more closely to the criterion than the standardized silent reading test scores. Seven of these differences are at the .01 level of significance, one is at the .05 level of significance, two are not significant at the .05 level.

Correlations found between the Botel Reading Inventory and the standardized tests are shown in Table 5. It will be seen that the correlations are highest in the lower grade levels ranging from .93 in second grade to .55 in grade 6. That is to say, the lower the

Table 6

Percentage of Pupils in Readers Below Grade Level Placed Correctly, Underplaced, and Overplaced by the Botel Reading Inventory (Forms A and B) and Standardized Silent Reading Tests Using Placement by Teacher as Criterion (February 1967)

Grade	N	Test	Underplacement		On Level	Overplacement			
			-2	-1		+1	+2	+3	+4
2	22	Botel Form A			82	18			
2	22	Botel Form B			68	32			
2	22	Calif.		4	18	64	14		
3	25	Botel Form A		12	80	8			
3	25	Botel Form B	4	12	80	4			
3	25	Iowa		20	44	24	12		
4	24	Botel Form A		13	75	12			
4	24	Botel Form B			67	25	8		
4	24	STEP	13	17	17	25	25		3
5	26	Botel Form A		8	88		4		
5	26	Botel Form B		4	88	8			
5	26	STEP	4	8	37	23	27		4
6	24	Botel Form A	13	21	62	4			
6	24	Botel Form B	8	29	58		5		
6	24	STEP	4	33	25	17	13	4	4

grade level, the higher the concurrent validity.

Matching findings

Table 6 shows how the scores of pupils on the Botel Reading Inventory (Forms A and B) and the standardized reading tests match the actual placement of those pupils in grades 2-6 who are reading below grade level. This group was selected for study for two reasons. First, as we have noted, the group reading in grade level texts or above frequently were able to read at higher levels. Second, the slower readers have been believed in the past to be overplaced in reading by standardized checks. Verification of this notion could be checked by this comparison.

Since inspection of Table 6 suggests that the Botel Reading Inventory (Forms A and B) more frequently

place pupils at their instructional reading level than do the standardized tests, the significance of each difference was tested (4: 240) using chi-square (including Yates Correction). This data was grouped in two categories, *on level* and *off level*, in making these comparisons. Tables 7 and 8 summarize the significance of these differences for pupils reading below grade level.

Table 7

Relative Ability of Botel Reading Inventory (Form A) and Standardized Silent Reading Tests to Place Pupils on Their Instructional Reading Levels

Grade	N	Botel A		Stand. Test		Chi-Square
		on	off	on	off	
2	20	18	4	4	18	15.364 ¹
3	35	20	5	14	11	5.433 ²
4	24	18	6	4	20	14.250 ³
5	26	23	3	9	17	13.731 ¹
6	24	15	9	6	18	5.418 ²

Table 8

Relative Ability of Botel Reading Inventory (Form B) and Standardized Silent Reading Tests to Place Pupils on Their Instructional Reading Levels

Grade	N	Botel A		Stand. Test		Chi-Square
		on	off	on	off	
2	20	15	7	4	18	9.263 ^a
3	35	20	5	11	14	5.432 ^a
4	24	16	8	4	20	10.371 ^a
5	26	23	3	9	17	13.731 ^a
6	24	14	10	6	18	4.200 ^a

^a Significant at the .001 level

^b Significant at the .05 level

^c Significant at the .01 level

Conclusions

All five hypotheses stated in null form were rejected, leading to the following conclusions for the population studied:

1. The Botel Reading Inventory (Forms A and B) are more closely related to the criterion than the standardized silent reading tests used in this study.

2. The Botel Reading Inventory (Forms A and B) are more highly related to the standardized silent reading tests used in this study at the lower grade levels.

3. The Botel Reading Inventory (Forms A and B) place pupils reading below grade level at their instructional level more effectively than do the standardized silent tests used in this study.

Analysis of the data suggests that for the purpose of placing a student at his instructional level, the Botel Reading Inventory might be superior to the standardized silent reading tests used in this study. Of course, the findings need to be verified with other populations before any more general statement of the relative efficiency of these tests for such purposes could be made.

The findings of this study shed some light on the extent to which standardized tests place pupils at their instructional levels. The generalization is made by some that standardized silent reading tests place pupils at their frustration level. In this study, it was found that while the standardized tests overplaced more pupils than did the Botel Reading Inventory, many pupils were either correctly placed or under-

placed by the standardized silent reading tests rather than overplaced.

Each school or school system ought to determine for itself the validity or relative ability of informal reading inventories and standardized tests to place its pupils at their instructional levels. Tabular procedures like those used in this study for determining extent of match should prove useful for such a purpose.

A more ideal study of the extent of match between various informal and standardized tests with the pupils' instructional levels can be accomplished by further improving the criterion measure. It seems that this would best be done by determining for each student how well he reads silently and orally at various levels of one or more scaled or graded reading programs. It was noted in this study that some able pupils were limited to grade level on basal reading material or at most to one grade level beyond grade placement, despite the fact that their performance in oral reading and comprehension was almost perfect. In an ideal classroom, each student must be allowed to read as far beyond grade level as his ability and maturity justifies.

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Independent Reading Interests of Children in Grades Four, Five, and Six

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A CHILD GENERALLY BEGINS his school life with the desire to learn to read. He is interested. As the child progresses through the primary grades, he seems to maintain his interest in learning to read and in reading independently with little or no loss of enthusiasm for the activities.

By the middle grades, however, interest in independent reading seems to wane for innumerable reasons. This presents teachers, parents, and librarians with a challenge to stimulate the child's growth through reading—to stimulate him to develop broad tastes and a depth of literary appreciation. The child's interests can be a key to this development.

The problem

It was the purpose of this study to investigate the independent reading interests of children in grades four, five, and six. Independent reading is that reading which children pursue for personal enjoyment and which is the result of self-seeking.

The answers to two major questions were sought: 1) what are the independent reading interests of children in grades four, five, and six; and 2) are there significant relationships between these interests and grade level, sex, availability and use of school and public library facilities, instructional reading approach predominant in the classroom, and residential group membership of the children? The ultimate purpose was to gain information which would be valuable to educators and others who are in positions to stimulate children's reading behavior.

Significance of the problem

A review of research indicates that children of today are reading more and reading more widely than any previous generation. Several reasons could account for this increase. First, there are more children's books available than ever before. Among the influencing factors are increased numbers of publications, improved school and public library facilities and programs, and increased popularity of children's book clubs.

Second, there is a greater variety of books available for children today. Children's literature, like adult literature, reflects the changes in society and the concerns and demands brought about by these changes. The child of today, because of advances in science and technology and because of increased travel and exposure to mass media, has broader interests than the child of previous generations. There seem to be indications that these broader interests are reflected in the child's choices of reading materials.

Third, greater than ever before is the variety of books being used in the instructional programs in the elementary schools. In the content areas, the use of a single textbook is giving way to the use of a wide range of both fiction and nonfiction books, especially the latter. Individualized reading, a reading approach utilizing trade books, has come into its own in many classrooms across the nation. Children's literature as an area of knowledge has been and still is neglected in many elementary school classrooms; however, there seems to be a trend toward planned literature programs in the elementary school.

Therefore, it is evident that a study of the independent reading interests of children has significance for the school and the teacher, for the curriculum worker, for the school and the public

librarian, for the parent, and for the publisher of children's books.

Procedures

Four states (Delaware, Florida, Ohio, and Texas—one from each of the four major geographical regions of the United States as established by the United States Armed Forces Institute) were selected at random. Two hundred forty-three classrooms, and thus 243 teachers, representing thirty-two schools, also selected at random, participated in the investigation. The total number of students was 6,568.

The data were gathered by means of a student questionnaire, a reading interest inventory, and a teacher questionnaire. The student questionnaire furnished information on the child's grade level, sex, and use of school and public library facilities. The reading interest inventory was composed of fictitious annotated titles which covered a wide range of topics which appear in children's literature. Both fiction and nonfiction were included. For each item on the inventory, administered orally by the classroom teacher, each child indicated *yes* if he felt he would like to read the book or *no* if he felt he would not like to read it or *?* if he was not sure. The teacher's questionnaire furnished information about the school library facilities available, the predominant reading approach used, and the residential group to which the children belonged.

An interest score for each subject for each of the nine literary categories represented in the reading interest inventory was computed. Analysis of variance was used to determine if any significant differences existed among the mean interest scores of the complete subgroups (grade level, sex, etc.) in any or all of the variables (literary categories). Whenever significant differences among the means were found, the Duncan's multiple range test was applied to determine which pairs of

means were significantly different and which were not.

Findings and conclusions

Identification of children's independent reading interests. The rank order of the independent reading interests of children in grades four, five, and six, regardless of subgroupings, is: realistic fiction, fanciful tales, historical fiction, biography, history, recreational interests, science and health, poetry, and social studies. A notable interest gap appears between the biography and history categories which indicates that the predominant interests are fiction in addition to biography which is often fictionalized in children's literature. Therefore, it can be said that the predominant independent reading interests of children in grades four, five, and six are fictional in nature.

This does not necessarily mean that children are not interested in reading nonfiction. It is likely that nonfiction is read by children for informational purposes rather than for enjoyment in independent reading.

Significant relationships between identified interests and subgroups. Grade level. A decrease in independent reading interests is apparent from grades four to six. This is to be expected, since it is during this period of time that there is a noticeable increase in academic demands upon children and, even more apparent, an increase in children's out-of-school activities. These increases, of course, allow children less time for independent reading. It appears, therefore, that this decline in the amount of time for independent reading is accompanied by a decrease in interest in the reading.

Another reason for the decreased interest in independent reading by children in grades four to six could be that, for many children, the sheer joy of knowing how to read has been reduced to complacency or even ennui. This attitude could be reflected in a de-

crease of interest in reading for enjoyment.

Sex. The findings in regard to differences between boys' and girls' reading interests in grades four, five, and six seem to indicate little or no disagreement with the findings of most earlier research. Boys are more interested in the independent reading of historical fiction history, social studies, and science and health than are girls. Girls are more interested in the independent reading of realistic fiction, fanciful tales, biography, recreational interests, and poetry than are boys. It seems that boys are still most interested in stories of action and adventure that often transport them outside their immediate physical environments, whereas girls are still most interested in stories concerned with personal relations and problems. It is assumed, however, that girls will occasionally read books of action and adventure but that boys, on the other hand, will seldom read the more sentimental and emotion-arousing books enjoyed by girls.

Residential group membership. In the majority of the literary categories, independent reading interests are highest for children living in rural areas and lowest for children living in suburban areas.

There are several possible reasons for this difference in interest. The environment of rural children is generally more serene and unhurried than the highly-organized environment of many suburban children, so it would seem probable that rural children, who usually seek their own recreation, would tend to be more interested in quiet activities such as reading. The proximity of suburban homes and thus of playmates would, it would seem, encourage interest in recreational activities involving groups of children. This would tend to preclude interest in reading. Rural children, being more isolated from each other as well as

from public recreational sites, have fewer opportunities to participate in many activities, so are likely to be interested in enjoying them vicariously through reading.

Another reason for the higher interest in reading on the part of rural children may be empirical in nature. Historically, both school and public library facilities have been meager or limited in accessibility in rural communities. The children may be expressing a desire for that which is not readily available to them, or, in a sense, may be seeking the unknown, when they indicate high interest in reading independently.

Instructional reading approach. The instructional reading approach predominant in the classroom seems to have little effect upon the independent reading interests of children. This finding could lead one to speculate that the development in the classroom of children's independent reading interests is more likely to be fostered by the teacher who knows the children, who knows children's books, and who enthusiastically promotes reading for enjoyment. In other words, a skillful, enthusiastic teacher who considers children's literature as an integral part of the curriculum probably has more effect upon children's reading interests than does the nature of the instructional reading approach.

Availability of school library facilities. In the majority of the literary categories, independent reading interests are highest for children who have available both centralized and room libraries or centralized libraries only, and lowest for children who have available room libraries only.

The materials in room libraries are generally limited in number and scope or range of interests. In addition, most of the materials are usually related to academic subjects or units of work, rather than to children's expressed interests in reading indepen-

dently. On the other hand, the materials in centralized libraries are more likely to be greater in number and broader in scope or range of interests. The centralized library usually has the added advantage of a trained children's librarian who can promote children's reading interests by working directly with the children as well as by working indirectly for the children through the classroom teacher. It would be expected, therefore, that children who have available centralized libraries would develop greater independent reading interests than would children who do not have that advantage.

Use of school library facilities. The independent reading interests of children who use school library facilities from twice a month to one or more times a week are generally higher than the independent reading interests of children who use school library facilities once a month or never.

Whether one interprets this finding as meaning that the greater the use of the school library, the higher the interest in independent reading or, conversely, the higher the interest in independent reading, the greater the use of the school library, it seems quite evident that schools that encourage children's frequent use of the school library are promoting the development of the independent reading interests of children.

Use of public library facilities. No identifiable pattern is apparent in the relationships of children's independent reading interests and the children's frequency of use of public library facilities.

The frequency of use of public library facilities probably depends upon other factors besides interest. These factors could include the proximity of the public library to the children's homes, ease of transportation, acquaintance with the library facilities, encouragement and example of parents and, in some cases, library card

fees. It is possible, too, that with the trend toward more and improved elementary school libraries, the necessity for children to use public library facilities is decreasing.

Recommendations

Several recommendations can be made to educators and others who are concerned with the independent reading interests of children.

Since children in grades four, five, and six have less time for reading than they had in the primary grades, it becomes increasingly necessary that these children make good use of the time that is available. This means that they need guidance in selecting reading materials. This guidance can best be afforded children through a children's literature program which is an integral part of the elementary school curriculum. This program must be much more than a free reading period scheduled several times a week. There should be ample provision for sharing, discussing, and interpreting literature read by the children as well as that read by the teacher to the children. The teacher must know the children, know children's literature, and know means for bringing the two together. The goal of the teacher should be to guide children to become readers, not merely individuals who know how to read. Therefore, the literature program and the instructional reading programs should complement each other.

Because of wide differences in reading interests between boys and girls, rural and suburban children, etc., a wide range of reading material must be available to the children. The elementary school should have available library facilities that provide for independent reading interests as well as academic needs and interests. It seems that the centralized library is best for providing the needed range of materials, but having the facilities is not

enough. The school through the administrator, the teacher, and the librarian must provide the encouragement and the opportunities for children to use the school library facilities.

There are many factors beyond the scope of this investigation which might be considered in studying the reading interests of children. Recommendations for further research include these investigations:

1. Consideration of the relationship of children's independent reading interests to intelligence, to reading achievement, and to general academic achievement.

2. Consideration of the relationship of children's independent reading interests to their socioeconomic levels and /or the educational background of their parents.

3. Consideration of the relationship of children's expressed independent reading interests to their actual independent reading behavior.

4. Consideration of the relationship of children's independent reading interests to the nature of the literature programs in the curricula of the elementary schools.

5. Consideration of a wider range of grade or age levels than were studied in the present investigation in order to identify the scope and sequence of children's independent reading interests at various levels and to locate points of significant changes in children's interests.

6. A longitudinal study of children's independent reading interests in order to identify changes in interests and the factors which cause the changes.

A 1967 Study of Televiewing

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TELEVISION continues to be the favorite leisure activity of boys and girls in the United States. Beginning in 1949, studies (6) showed that children gave more time to televiewing than to any other leisure pursuit. The appeal of tv was not limited to children; high school students also spent many hours each week watching television programs. Some persons thought that the

time devoted to tv would decrease when the novelty of the sets wore off. But the attraction of the electronic Pied Piper did not diminish. Instead, televiewing became a universal feature of American life.

Over the years, many parents have been concerned about the influence of tv upon boys and girls. Some have stressed its beneficial effects, while others have cited its undesirable features. Critics have emphasized the fact that many programs are mediocre, and that far too many popular presentations depict violence and aggression. Teachers, too, deplore these unfortunate features of tv. Yet, complaints from both parents and teachers have become less frequent as the years have gone by. Children, however, have been consistent in their endorsement of tv. For example, one nine-year-old boy stated that "tv is the greatest thing in the world; it is fun and you learn a lot from it." Another child remarked, "What did people do before they had tv?" And still another referred to "prehistoric times, before people had tv."

Yearly studies of televiewing

Our studies were started in 1949-1950, and have been continued to the present. We attempted each year to obtain responses from a representative sampling of elementary and secondary school pupils in the Chicago area. The procedure included the use of questionnaires, interviews, and "logs" kept by the pupils. The items in these inquiries covered amount of televiewing, favorite programs, and attitudes toward the mass media. Responses were obtained also from parents and teachers.

In 1967, questionnaires were administered to about 2,250 pupils enrolled in elementary and secondary schools of Chicago which were regarded as representative of varied socioeconomic backgrounds. This report is limited to the

responses of pupils in grades 2 through 12. It will serve to supplement and extend the earlier studies with which comparisons will be made.

There were, in the 1967 study, approximately 225 pupils in each grade. Forty-eight percent had one tv set; forty-one percent, two sets; and about eleven percent, 3 sets. Twenty percent had color television.

Amount of televiewing and best-liked programs

The amount of televiewing increased from a weekly average of sixteen hours for the second grade pupils to twenty-four hours for the sixth graders. For grades 2 to 6, the average was twenty-one hours. The amount of televiewing decreased in high school. The average for high school students was twelve hours. These findings are similar to those which have persisted in our studies for several years.

The best liked programs have changed throughout the years. For example, in 1949-1950, *Hopalong Cassidy*, *Houdy Doody* and *Lone Ranger* were high in the children's list of favorites. *I Love Lucy* held top ranking from 1952 to 1955, to be replaced in 1956 by *Disneyland*. In 1963, the *Beverly Hillbillies* was very popular, while in 1965 *The Man from U.N.C.L.E.* was given first rank. Rapid changes occurred also in the preferred programs of high school students.

Popular tv programs of 1967 may be readily discerned by examining Table 1. In the primary grades, *Green Hornet*, *Ringo*, and *Bewitched* stood at the top of the list, while in the middle grades, *Time Tunnel*, *Green Hornet*, and *Man from U.N.C.L.E.* attained highest ratings. In the junior high school, *Monkees*, *Man from U.N.C.L.E.*, and *The Fugitive* were very popular. *I Spy*, *Star Trek*, and *The Fugitive* were the favorites of the high school students.

Table 1

Favorite tv Programs of Pupils

Rank Order	Grades 2-3	Rank Order	Grades 4-6
1	Green Hornet	1	Time Tunnel
2	Ringo	2	Green Hornet
3	Bewitched	3	Man from U.N.C.L.E.
4	Batman	4	Lost in Space
5	Time Tunnel	5	Bewitched

Rank Order	Grades 7-8	Rank Order	Grades 9-12
1	Monkees	1	I Spy
2	Man from U.N.C.L.E.	2	Star Trek
3	The Fugitive	3	The Fugitive
4	Girl from U.N.C.L.E.	4	Monkees
5	Time Tunnel	5	The Invaders

Radio listening and movie attendance

Radio is still popular with the pupils. Children in grades 2-3 stated they spent about 4 hours per week listening to the radio, while in grades 4-6, the weekly average was 8 hours. Students in grades 7-8 listened to the radio on the average 10 hours per week. The average for high school students, as in past years, was 12 hours weekly. The transistor radio has added to the time given to radio listening. Over half of the elementary and about two thirds of the secondary school pupils reported that they had transistor sets.

News, weather, and music were the best-liked radio programs of children in the elementary grades, while sports presentations had the greatest appeal for high school students. The favorite disk jockeys of high school students were Art Roberts and Ron Riley.

Movies outside the home were seen once each week by about half of the elementary school pupils. High school students attended movies much less frequently. Favorite movies were generally those currently shown in neighborhood theaters. Such movies often featured the spy-detective theme or the musical show. "Mary Poppins" (last year's favorite) dropped to fifth place among the elementary school

pupils. "Sound of Music" attained popularity with secondary school as well as with elementary school pupils. A movie based on the Bible was cited at all grade levels as a favorite. From the first, the elementary school pupils liked TV better than radio or movies. In the high school, TV and radio were about equally popular.

Reading and TV

It has frequently been stated that TV has affected reading adversely. In our early studies, we found that elementary school pupils read about the same amount after TV came to them as they did before its advent. Of course, most children cannot now recall a time without TV. In recent studies, we have found few pupils who state that TV has caused them to read less. Many indicate that TV has motivated them to read. Some writers believe that both elementary and secondary school pupils are now reading more than before TV, and cite the reports of librarians to support their views.

Our studies suggest that elementary school pupils may be reading a little more than before TV came to them. But the picture is by no means a bright one, since most pupils do not read widely. Moreover, the time given to

reading as compared with that consumed by TV is small—one hour daily to reading as compared with three hours to TV.

In several studies, little relationship was found between the amount of television and marks in school. Similarly, reading achievement as measured by standardized tests showed little relationship to amount of television. Other investigations have confirmed these findings.

In the 1967 study, about forty percent of the pupils said that TV had led them to read certain books. They were asked to name the books they had read because of TV. Most books were cited only once. Table 2 gives the titles of books mentioned by two or more pupils at the various grade levels.

It is of interest that few recently written books were listed except those based on particular TV programs. The Disney books, however, were frequently cited, and time-honored favorites were also mentioned, for example, *Tom Sawyer*, *Tale of Two Cities*, and *David Copperfield*.

About fifteen percent of the pupils said that listening to the radio had led them to read books, while thirty percent stated that the viewing of movies

Table 2

Books Read Because of Television Programs

<u>Titles of</u> <u>Grades 2-3</u>	<u>Number of Times</u> <u>Cited</u>	<u>Titles of</u> <u>Grades 4-6</u>	<u>Number of Times</u> <u>Cited</u>
Wizard of Oz	6	Cinderella	6
Cinderella	4	Snow White and the Seven Dwarfs	5
Jack and the Beanstalk	4	Lassie	4
Lassie	3	Tom Sawyer	3
The Bible	3	Superman	3
Tom Sawyer	2	Lone Ranger	2
<u>Titles of</u> <u>Grades 7-8</u>	<u>Number of Times</u> <u>Cited</u>	<u>Titles of</u> <u>Grades 9-12</u>	<u>Number of Times</u> <u>Cited</u>
Man from U.N.C.L.E.	6	Man from U.N.C.L.E.	14
Time Tunnel	5	Time Tunnel	9
Kon Tiki	2	Prince & the Papuer	5
Fountainhead	2	Girl from U.N.C.L.E.	4
Tale of Two Cities	2	Thunderball	3
David Copperfield	2	Dark Past	2

had stimulated their reading. The amount of reading was highly individual, however, with few titles mentioned by more than one pupil. Among the books said to have been read because of movies, the Bible was listed most frequently by pupils in the primary and intermediate grades; books related to Disney presentations were frequently cited by the same groups. Students in grades 9 to 12 mentioned a varied assortment of titles. *Goldfinger* was the title that appeared most often.

TV as an aid to school work

Increasingly, pupils said that TV aided them in school work. In 1967, over half of the pupils mentioned one or more programs as being helpful. Some of these programs were shown by educational stations affiliated with the pupils' schools; for example, *Land and Sea*, *Science in Focus*, and *Tell Me a Story*. *Star Trek* was the program given first place by the high school students.

Despite the fact that some educational TV programs were mentioned as helpful in school, the amount of viewing of such programs was very small. Less than one percent of the primary pupils said that they watched educational TV as compared with 5 percent in grades 4 to 6, and eleven percent in grades 7 and 8. Only 7 percent of the high school students indicated that they watched educational TV. About fifteen percent of the pupils said that radio and movie programs had also helped them in school. The similarity of the helpful radio programs cited by the elementary and the secondary school pupils was striking. Included were news, weather, and musical offerings at all levels. Students in grades 7 through 12 reported also that information about sports was of value to them in school.

Certain movies seen outside the home, were said by the pupils to help in school. These movies included *The*

Bible, *Alamo*, *Marco Polo*, *How The West Was Won*, *West Side Story*, and *Hawaii*. Many of the helpful programs dealt with historical characters or events.

About half of the pupils said that their teachers encouraged activities in school associated with TV programs. Fewer activities seemed to result from listening to the radio or seeing movies. In the elementary grades, the activities related to TV were varied, while in the high school, they were largely confined to enrichment of the English program, as shown in Table 3.

Table 3

Classroom Activities Related to TV

<u>Activities— Grades 2-6</u>	<u>Activities— Grades 7-8</u>
Science projects	Mathematics
Musical activities	Science projects
Dramatizations and pantomime	Singing
Making puppets	Band
Telling stories	Current events
Making dioramas	Creative writing
Learning French	News
	Sports
<u>Activities—Grades 9-12</u>	
Discussion of plays	
Writing reports of particular shows	
Writing summaries of plays for English	
Studying parts of dramas	
Current events discussions	
Sports	

Inquiry was made concerning the programs the pupils would like to see more frequently on TV. The primary level pupils suggested that science, space, and war presentations be added, while the middle grade pupils expressed a desire to see more programs which featured westerns, war, and mystery. Science fiction and James Bond movies were suggested frequently by the high school students.

Gains in vocabulary. We have stressed some of the desirable aspects of children's interest in TV. Teachers repeatedly have mentioned the value of televising in improving children's vocabularies. Several studies have shown that TV may foster vocabulary

improvement in young children. In our 1967 study we asked the children to list the words they had learned from tv. The elementary school pupils listed many words associated with space exploration, such as *lunar* and *blast-off*, while varied scientific terms were frequently mentioned by the high school students.

Throughout our investigations, we have found that vocabulary gains tend to diminish quickly unless there are efforts to maintain them. To do this, we have employed a number of techniques. For example, in 1962, diary forms were distributed to middle grade pupils who were asked to record daily for one week the new words they had learned from tv. They were requested to indicate the programs from which the words were learned, and they were asked to define each new word. There were 113 new words cited by thirty-five sixth grade pupils. Only ten of these words were mentioned two or more times. The highest frequency was four for the word *capsize* (from "Password") which was given several acceptable definitions. Among the other words in the list with frequencies of two or more were *seiche*, *hemoglobin*, *espionage*, and *torso*.

Concluding statement

This survey confirms many of the facts fairly well-established about the amount and nature of children's tele-viewing. We know, however, relatively little about the effects of tv upon boys and girls. Parents and teachers continue to be fearful that excessive viewing of violence and aggression may lead children to accept or condone such behavior as almost a normal way of life. There appears to be no decrease in the viewing of or the liking for such programs. In fact, children would like to see more programs of this type. Research students have indicated that children who are already socially maladjusted may be more

deeply affected by excessive viewing of such presentations. The research in this area is inadequate and the results are contradictory. Many adults are concerned also about the quality of numerous programs. They believe that televiewing is likely to keep children on a plateau educationally since relatively few popular offerings will lift them to high levels of accomplishment. Nevertheless, few parents now express dissatisfaction with tv.

Both parents and teachers occasionally stress the need for supervision of children's televiewing. Little supervision is given, however, as is shown from the results of our studies as well as from an investigation by Robert D. Hess and Harriet Goldman (3) who conclude:

- (1) In the majority of families the young child watches almost as much as he wishes, and, for the most part, views programs of his own choice.
- (2) In the majority of families, mothers make little effort to supervise either program selection by the child or the total amount he watches.
- (3) In most families, the father has little voice in determining the television behavior of his child.

There are some bright spots in the findings of our surveys. From the first, some teachers have found effective ways of using tv to promote wholesome development in children. Increasingly, they are observing the interest of children as revealed by tv behavior and are trying to associate reading with these interests. Some schools, too, have attempted to develop comprehensive programs for the guidance and constructive use of televiewing. For example, an attempt to use tv to foster desirable school work was made as early as 1953 in an elementary school in Brooklyn (1, 2, 5). A guide was prepared for the pupils throughout the school. As a result of discussion and activities related to tv, less time was spent in televiewing, and children came to devote more time to reading, club activities and artistic pursuits.

In recent studies, pupils have more often reported that tv is helping them with their school work. Teachers are devising more frequently classroom activities associated with tv offerings. Some parents, too, have provided effective guidance through the formation of planning councils in which weekly schedules of leisure activities are developed by the entire family. These schedules make a place for televiewing, reading, and various types of outdoor recreation.

In seeking to evaluate tv offerings, some parents and teachers are finding the book *Television for the Family* (4) a valuable aid. Still others are obtaining substantial help for the guidance of children through consulting evaluations of tv programs that appear regularly in the *PTA Magazine*.

We have briefly reviewed a study made in 1967 which reveals facts about the nature and extent of children's televiewing. We have also cited some data concerning the effects of tv upon boys and girls. This research needs to be extended by more comprehensive efforts. There is a great need, too, for more widespread attempts to offer effective guidance and supervision both in school and at home.

At present, there are many mediocre tv programs, and far too many offerings which feature violence and destruction. But there are also programs, both commercial and educational, which are highly desirable for children, and there are some presentations of beauty and singular merit which boys and girls would benefit from seeing. We should take advantage of children's strong interest in tv and try to find ways to derive greater benefits from the electronic Piccadilly Piper.

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First Grade Composition as it Relates to Two Methods of Beginning Reading in Inner-City Schools

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IN THE PAST FEW YEARS, several research committees in language arts have encouraged researchers on all levels to tackle the evaluation of composition and the correlation of composition with reading. The National Council of Teachers of English has repeatedly suggested that language arts research should provide evidence and criteria on which the language arts teachers can judge compositions from grades one through twelve (1). "Many teachers are confused," says Parke, "concerning what they are to do in integrated (language) situations and what separate teaching skills should be done in a good language program. Efforts should be made to clarify answers to these questions more constructively" (4). In the primary grades, where language arts skills are often taught in an interrelated manner, it is especially important to know what the relationship is.

Loban (2) has demonstrated in his study that there is a correlation between reading and writing above grade three; that there is, in fact, correlation among all the communication skills of

listening, speaking, reading, and writing. One might anticipate that such a correlation exists. At this point in time, however, it is difficult to anticipate what kind of writing performance can be expected of children in the primary grades, and what influence the kind of reading instruction has on their writing performance. In theory, at least, writing and reading are closely related skills, for reading and writing function through visual symbols, whereas listening and speaking use sound symbols. It might be hypothesized, therefore, that what enhances proficiency in reading contributes to proficiency in writing. It was one of the purposes of this study to investigate whether or not this relationship exists. The study sought to answer these questions:

1. Can reliable criteria be established for evaluating first grade composition?
2. Are reading achievement and composition performance related at the first grade in inner-city schools?
3. Does the method of teaching beginning reading seem to influence children's performance in written composition?

Design of the study

The purposes of this study were as follows:

1. To see if there are differences in composition performance between an experimental reading group using synthetic phonics and the control reading group using a meaning-emphasis approach (analytic word attack method).*
2. To develop criteria and an instrument for evaluating first grade compositions.

Disadvantaged children used

Seven hundred and seventy-nine pupils from six cities were used as subjects for the study.**

*The experimental group used the McQueen phonics program and Open Court Reader 1: 2, *Reading is Fun*, Open Court Publishing Company, La Salle, Illinois. The control group used traditional basal programs. Readers published by Scott, Foresman, Ginn, American Book, and Houghton-Mifflin were represented in the that constitute the sample population.

The cities contributing to the sample were Catholic Archdiocese of Chicago; New Orleans, Newport News, Port Arthur, Richmond, and Salt Lake City.

The subjects used in this study were chosen by the project directors in each of the participating cities. These directors were instructed to select their classes from the lower socioeconomic areas using their regular procedures for class assignments. No formal measure of the socioeconomic status of the subjects was applied, but the Pintner-Cunningham Primary Test, Form A, was administered to determine the IQ of the children. When the data for all the cities were combined, the total experimental group and the total control group differed by one point in IQ and by less than a month in chronological age, neither of which constitutes a significant difference. The IQ distribution of both experimental and control groups were normal, though the mean IQ of both groups was slightly low.

It is assumed that there are no significant differences between the experimental group and the control group in social background, maturation, intelligence, and the qualifications and experience of their teachers. It is hypothesized, therefore, that any significant difference occurring in the subject's performance on the composition test will be related to the method of teaching reading—the only known variable differing between the two groups.

Statistical tests. To test the correlation of reading and writing, the Pearson Product Moment Correlation formula and the point biserial correlation were used. To test the differences

**This present study used the same population as the Hegeler Project Reading Study. The Hegeler Foundation enabled the author to use the reading scores compiled by the Project in this reading-composition study. Results of the Hegeler Project Reading study are found in "First Year Report on the Hegeler Project Reading Study" published by the Hegeler Foundation Box 399, La Salle, Illinois, March 1966.

in means between experimental and control groups, the *t*-test for differences and the Kolmogorov-Smirnov Difference Statistic were used. The level of significance chosen was .05.

Procedures

Procedures for the study were the following:

1. Major cities were asked to participate in the experiment.
2. In September, classes were selected from the lower socioeconomic areas of these cities. Local project directors selected comparable teachers and students for the experimental and the control groups. The Pintner-Cunningham IQ Test was used to determine intellectual comparability.
3. In May the Stanford Achievement Test, Primary 1, Form 10, was administered. Also administered and evaluated was a composition exercise in the form of a dictated sentence and an open-end story to be completed in twenty minutes.

Summary of findings

Reading scores. The Stanford Achievement Test was administered and two reading scores were obtained for the entire sample ($n=.779$). The experimental subjects (phonics emphasis) for this composition study had mean reading score significantly higher than the control subjects (meaning emphasis.) On the Stanford Achievement Test, Primary Battery I, Form x, the experimental group using synthetic phonics had a mean score of 24.1 for Word Reading, and the control, using a meaning emphasis, had a mean score of 17.5; the experimental had a mean score of 20.1 for Paragraph Meaning, the control, a mean score of 17.2. A *t*-test ratio indicated a significant difference in favor of the experimental group (.001 level) that would occur by chance less than one time in a thousand.

Composition scores. The compositions were rated on a 1-5 scale for completeness and clarity of communication (see Table No. 1). Other mea-

asures of the compositions consisted of counting instances of the following:

1. the number of correctly spelled words in an eight-word *dictated sentence* (The tall man took the big ball home.)
2. the number of words attempted in the composition--fluency
3. interesting *content*, i.e., the number of solutions or sequels presented (*flexibility*); *original* ideas, events, and expressions; use of *rhetorical* devices, such as questions and direct discourse; use of *emotion* (charged words, such as *afraid*, *laugh*); and awareness of environment (*visualization*)
4. vocabulary above grade 1
5. vocabulary above grade 3

The means and standard deviations of these composition measures are given in Table 2.

Is there a correlation? The hypothesis that there is a high correlation between reading and written composition at the first grade level was confirmed. (See Table 3) A product moment "*r*" of .675 was found between word reading and composition communication, and .62 between paragraph meaning and composition communication. The correlation between paragraph meaning and *fluency* (number of words attempted in the composition) was comparatively low, "*r*"=.442. The point biserial test statistic indicated a significant relationship between reading method and scores on the composition communication rating scale (.001 level of significance).

Does the reading method make a difference? The hypothesis that the experimental group would have a higher mean composition score than the control was confirmed at the .001 level of significance for the following measures: communication rating scale, the number of correctly spelled words on the dictated sentence, fluency, and vocabulary. The hypothesis was rejected at the .05 level for the measure of interesting content. The difference in total content scores favored the experimental group, but it was not significant.

Table 1
Cumulative Frequency of Communication Scores

Communication Score	Experimental			Control			D
	f	cf	cp	f	cf	cp	
5	56	393	1.000	12	386	1.000	-
4	81	337	.857	51	374	.968	.111
3	122	256	.651	99	323	.836	.185
2	76	134	.341	120	224	.581	.240+
1	58	58	.147	104	104	.269	.122+
	N = 393			N = 386			

Kolmogorov-Smirnov D statistic = .240

Chi square estimate = 44.8667; level of significance = .001 with 2 d.f.

Communication Rating Scale

- 5—Superior
- 4—Competent
- 3—Fair
- 2—Poor
- 1—Failing

Table 2

Mean and Standard Deviations of Composition Evaluation Criteria

	Com- muni- cation	Dicta- tion	Flu- ency	Flexi- bility	Origi- nality	Rhet- oric	Emo- tion	Visuali- zation	Cont. Total	Voc. Gr. 1+	Voc. Gr. 3+
<i>Exp.</i>											
N	393	393	393	64	64	64	64	64	64	94	94
x	3.00	6.54	24.29	.750	.312	.218	.531	.968	2.78	6.39	2.54
sd	1.62	2.28	18.73	.883	.582	.413	.900	1.24	2.90	4.83	2.09
<i>Con.</i>											
N	386	386	386	63	63	63	63	63	63	81	81
xx	2.34	5.22	17.06	.603	.317	.444	.365	.698	2.24	3.41	1.69
sd	1.10	2.56	15.79	.702	.479	.751	.496	.902	2.89	3.26	2.16

Table 3

Correlation Between Reading Achievement and Composition
Performance at First Grade Level

Scores	N	r Value
Communication and Word Reading	779	r = .675
Communication and Paragraph Meaning	779	r = .620
Fluency and Paragraph Meaning	779	r = .442

Word Reading and Paragraph Meaning scores are from the Stanford Achievement Test, Primary I, Form x.

Communication and Fluency Scores are from an author-devised rating scale.

Conclusions and discussion

Limitations. A word of caution must be given concerning the limitations of the study. The test population came from low-income neighborhoods in urban areas, and the literature indicates that for these children neither their experiential background nor their performance on language-related tests can be expected to compare with that of children from more advantageous circumstances.

The cities participating in this study volunteered for the project. This fact may indicate some bias in favor of the experimental phonics program. There is no way of knowing whether these cities volunteered for purposes of objective research or because they felt internal pressure to try a reading program containing one or more of the unique elements of the experimental readers. These elements are intensive initial phonics (synthetic phonics), emphasis on writing via copying and dictation, and stories drawn primarily from traditional children's folktales and fairytales.

This study did not attempt to isolate any of the factors within the reading methods, and so there is no scientific way of determining from this exploratory study whether one of the unique elements alone or the three in combination helped produce the superiority of the experimental group in reading and in composition. The reading methods in the control groups are traditional basal methods in the sense that they begin with an initial body of sight words and develop word analysis gradually and analytically. The stories in their first grade books center around the home, school, and neighborhood.

Another factor that must temper the generalizations of this study is teacher selection. Local administrators selected teachers for the experimental program, and it is possible that they

chose teachers who were most amenable to the reading philosophy contained in the experimental program.

Conclusions

Evaluation instrument. One of the steps necessary to the completion of this study was the construction of an evaluation instrument. One containing two parts was constructed. One part, a five point rating scale, evaluates communication; the other part enumerates instances of interesting content. The reliability of the communication rating scale was .77 on a single trial. No reliability study was made on the content total (interesting content). The content total section of this evaluation instrument needs more study and refinement. The reason for doubt is that the interesting content criteria failed to discriminate between the experimental group and the control group, although in other measures used there was a significant difference between the two groups. That fact, in itself, does not discredit the use of counting instances of interesting content as a criterion in evaluating primary grade writing. But it certainly holds in check any exuberance the author may have felt about solving completely the major problem of an objective evaluation of primary grade composition. On the other hand, there are possible reasons for expecting the experimental and control groups to have similar scores in the area of interesting content, as will be discussed shortly.

In many ways the instrument or the criteria used in this study to evaluate composition proved to be quite practical. To accomplish its purpose and be useful to the classroom teacher, the instrument had to be quick and easy to administer. The raters found that they could rate communication, count interesting content and count the total number of words (fluency) in one to four minutes per paper, depending on

the length and clarity of the composition.

Correlation of reading and writing.

Concerning the hypothesis that reading and writing are highly correlated, it was seen that in this first grade study, word reading scores and paragraph meaning scores were correlated with the composition communication scores at .67 and .62 respectively. This result confirmed that hypothesis and corresponded to the findings in other studies.

One correlation that did not meet the prediction of a high correlation was the .42 "r" between paragraph meaning and fluency in writing. A partial explanation of this low correlation may revolve around the rather frequently occurring compositions that had very few ideas but many words. Some children repeated words again and again—probably in an effort to fill out the time allotted for writing their compositions. One composition read, "Timmy fell down and down and down and down and down and down and down and down."

Of more importance to this study was the significance of the correlation between reading method and composition. It was found that the reading method (experimental and control) had a high correlation with written communication (a rpb significantly different from zero at .001 level). This statistic provides a strong argument for the effectiveness of the distinguishing elements in the experimental program in improving composition skill as well as for the reliability of the communication rating scale in distinguishing between the experimental and control groups.

Results that favor experimental group. Concerning the hypothesis that the experimental group would have a higher mean score than the control group, the hypothesis was con-

firmed in several areas of composition. It was found that the experimental group achieved higher scores in fluency, dictation, communication and vocabulary. These differences were significant at the .001 level.

Some possible reasons. 1. An initial intensive phonics training as provided by the experimental method trains the child from the outset to associate letter symbols with speech sounds. This sound-symbol patterning could free the child to attempt in writing the words whose sounds he can analyze. This might be one reason, for example, why the experimental children were significantly more fluent than the control children. This assumed freedom might also account for the larger vocabulary used by the experimental children. Even the higher scores on spelling words correctly in the dictated sentence could be traced to the use of this sound-symbol patterning that was part of the experimental method. The control children were not necessarily trained to think consistently of letter arrangements within the words.

2. The built-in emphasis on writing in the experimental method may have contributed to the success of the experimental group. Writing practice, in fact, may be the key element in these reported differences. The validity of this statement may become more apparent when the lack of difference in content total scores are discussed. If it can be assumed that language learning is the result of habit and practice, then it stands to reason that the group that gets more practice in one kind of language learning will score higher than a comparable group not having as much practice. The experimental method emphasized writing from the outset of instruction in reading. Writing the letter symbols as a means of reinforcing the sound-symbol relation constitutes part of the method-

ology of the experimental program. Quite early in the first grade, the experimental method calls for the pupils to write words and sentences from dictation. This practice could make a child more fluent and free to write what he would say if given the chance to tell his story.

Meaning of conclusions for language arts instruction

With the tentative findings provided by this exploratory study, one can make certain speculations about research and guidelines in language arts instruction. These will be presented in the form of the following recommendations which apply to disadvantaged children in urban areas and only by inference to other populations:

1. A replication of this study is needed with certain modifications: isolating each of the three unique elements of the experimental method, i.e., intensive initial phonics instruction, emphasis on writing, story content drawn from children's classics, obtaining a more accurate determination of the socioeconomic status of the subjects with an instrument such as the Minnesota Parent Occupation Inventory.
2. A similar reading-composition study should be conducted among children of more favored economic conditions.
3. The orderly introduction of writing skills should be provided for, starting in grade one. Certain basic communication forms, such as the simple narrative, can be introduced early in the primary grades and can be written by the average child.
4. The writing sequence should be started with copying exercises, then dictation, and finally original composition.
5. Reading should be reinforced with writing exercises. Writing can be used to reinforce vocabulary, concepts, or the study of the structure of the piece that was read.

These recommendations are not necessarily new or different from what appears in other works, but the focal point for curriculum planning here is the first grade. If the theory and actual demonstration of the interrelatedness of reading and writing have any merit, it seems that writing should be given a structured part in the first

grade curriculum, and should not occupy merely an incidental time segment devoted to "creative things."

Conclusions

The purposes of this study were to determine the relationship of reading method and composition in order to find a way of evaluating first grade composition. On a population of 779 low income first grade children, it was found that reading and writing are correlated at the first grade level and that the experimental method (synthetic phonics) scored significantly higher than the control (analytic word attack) in both reading achievement and in composition performance. It was found that these children in low-income areas could write comprehensible compositions of several sentences, thus making writing a feasible exercise in the first grade and perhaps a desirable instructional tool for the first grade.

The instrument for evaluating these compositions was found to be efficient and reliable for evaluating communication in written composition.

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Language-Thought Processes in Children from Differing Socioeconomic Levels

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THE DEVELOPMENT OF THINKING has been accepted as one of the most important aims of American education (6, 11). At the same time, increasing research and interest in the thinking process has developed. In order to enhance the thought processes of children, educators must understand what kinds of thinking are considered to exist and what each mode of thinking involves.

For many years verbal measures have been looked upon as a means of measuring human thought processes. To go further, in fact, evidence that verbal facility may mold thinking has been presented by Piaget (13), Watts (17), Ervin and Osgood (7), Whorf (18), Lambert, Havelka and Crosby (10), Staats (15), Vygotskii (16), Carroll (5), and Ausubel (1). Verbal facility, the state of language development of an individual, is also closely related to language aptitude—how well an individual can learn language. It is, therefore, quite appropriate and necessary for those educators who are interested in teaching children language (all means of arriving at this objective being involved, i.e., reading, writing, usage) to be aware of the ways in which children learn and think about language, their language-thought processes.

In a recent creativity study, Wallach and Kogan (19) redefined and delimited creativity as a cognitive process which may involve only two elements. The first element involves the verbal generation of new combinations of associative elements, specific requirements being met in the process—an example of this is the set of verbal responses made orally by the examinee to

the test administrator's request for a list of all of the round things that can be brought to mind by the examinee. The second element merely involves the presence in the associator of a playful, indulgent task attitude. Wallach and Kogan showed that creativity so delimited and defined may be measured and shown to be independent of general intelligence measures.

The fact that the general intelligence measures and creativity measures used in the Wallach and Kogan study both call upon verbal facility to some degree and yet are not highly correlated, takes on special meaning in light of Carroll's (4) implications that general intelligence differs from language aptitude and that only certain factors measured by general intelligence tests should be included in a language aptitude test.

The questions to be considered at this point are 1) is language aptitude related to the results of general intelligence measures and creativity measures; and 2) if so, what is the nature of the relationships among measures of language aptitude, intelligence, and creativity? Research has already indicated that the results of general intelligence measures may be affected by language differences and/or cultural deprivation. Also, there is evidence of the effect of one's cultural orientation on his creativity.

Consequently, the major objectives of this study were to 1) work toward a clearer definition of the terms creativity and language aptitude; 2) better define the relationships among creativity, language aptitude, and intelligence; and 3) clarify the role that socioeconomic level has to play in determining these relationships.

Procedure

Subjects. The subjects were 132 sixth grade, public school pupils, 93 of whom were from a middle socioeconomic level area and 39 from a low socioeconomic level area of northeastern

Ohio. In studying the occupations of the parents as reported by the subjects, it was found that according to the Otis Dudley Duncan Socioeconomic Index (14), none of the parents of those in the group from the low socioeconomic level would place above 15 (on a one hundred point scale) when employed, while the parents of those in the group from the middle socioeconomic level would place between 23 and 96—many in this group having both parents employed. The mean scale placement of parents of children studied in the middle socioeconomic level area was 55.12; the standard deviation was 12.1. The mean scale placement of the parents of children studied in the low socioeconomic level area was 6.13; the standard deviation was 2.18.

Materials and collection of data.

The procedures for assessing language aptitude involved the administration of the Modern Language Aptitude Test. The long form of this test was used. The five parts and the traits measured by each part may be described as follows: 1) Number Learning, which purports to measure an aspect of memory and auditory alertness. 2) Phonetic Script, which was designed to measure sound-symbol association ability and memory for speech sounds. 3) Spelling Clues, which depends a great deal on the student's English vocabulary, but also happens to measure sound-symbol association ability. 4) Words in Sentences, which purports to measure sensitivity to grammatical structure, and 5) Paired Associates, which is believed to measure rote memory. Due to the fact that the Modern Language Aptitude Test has been used only at the ninth grade level or above, certain time adjustments were made giving as much time as needed for everyone to finish the work he wished to do. The exception to this was in Part 3, Spelling Clues, where some extra time was given; but the aspect of speed was retained rather

than power, since all other parts are considered to be power tests.

The procedures for assessing intelligence involved the administration of the Cooperative School and College Ability Tests. Form 5A of this test battery was used. Both a verbal and a quantitative measure of aptitude are available from this test.

The five Wallach and Kogan (19) creativity instruments, with two sub-scores for each, were administered to assess creativity. All of these instruments required the examinee to orally give verbal responses.

Analysis of data. The reliability of the creativity measures and the four parts of the Modern Language Aptitude Test which are considered to be power tests were determined by using the Spearman-Brown split-half prophecy formula. The reliability coefficients reflected the experimental nature of the use of the tests.

As the Cooperative School and College Ability Tests is a standardized battery and widely used in intellectual testing programs, considerable data are already available attesting to its high reliability.

Employing the point-biserial coefficient of correlation, it was determined that the middle socioeconomic level performed at a significantly higher level than did those from the low socioeconomic level on all measures. For the Modern Language Aptitude Test, the mean of those from the middle socioeconomic level was 85.14; the standard deviation was 22.18. The mean for those from the low socioeconomic level was 44.49; the standard deviation was 10.66. For the Cooperative School and College Ability Tests, the mean of those from the middle socioeconomic level was 75.80; the standard deviation was 14.24. The mean for those from the low socioeconomic level was 50.56; the standard deviation was 16.11. For the creativity measures, the mean of those from the mid-

dle socioeconomic level was 251.49 for the number score, 83.44 for the uniqueness score; the standard deviation was 162.09 for the number score, 96.85 for the uniqueness score. The mean for those from the low socioeconomic level was 181.67 for the number score, 61.36 for the uniqueness score; the standard deviation was 66.51 for the number score, 36.12 for the uniqueness score.

The experimental design basic to the study was a factor analytic design. Each of the socioeconomic level groups was analyzed separately. The factor structures for each of these groups, the low socioeconomic level group and the middle socioeconomic level group, indicate that a difference in kind or quality of process underlying performance exists between the two groups. In addition, the factor structures for both socioeconomic level groups indicate that the attributes labeled language aptitude and intelligence have a great deal in common, but do not share this communality with the attributes labeled creativity. Tables 1 and 2 indicate the factor structures.

Table 1
Middle Socioeconomic Level

Variable:	Factor 1	Factor 2
1. Instances—number	.56	-.17
2. Alternate Uses—number	.86	-.04
3. Similarities—number	.84	.12
4. Pattern Meanings—number	.83	.14
5. Line Meanings—number	.91	.13
6. SCAT—Total	.02	.81
7. MLAT—Total	.03	.86

Table 2
Low Socioeconomic Level

Variable:	Factor 1	Factor 2	Factor 3
1. Instances—number	.19	.81	.12
2. Alternate Uses—number	.36	.60	-.43
3. Similarities—number	.81	.33	-.21
4. Pattern Meanings—number	.88	.16	.05
5. Line Meanings—number	.84	.12	.16
6. SCAT—Total	.21	.13	.51
7. MLAT—Total	-.12	.14	.74

The Modern Language Aptitude Test was also factor analyzed. In this analysis, the children from the middle socioeconomic level tended to approach all language tasks involving the interrelations among meaning, sound, and symbols in much the same way, and in a way different from their approach to sentence structure. In contrast, the children from the low socioeconomic level seemed to have three separate approaches to language tasks: one for structural relations, one for sound-symbol meaning relations, and one for recognition of symbols. Tables 3 and 4 indicate the factor structures.

Table 3
Middle Socioeconomic Level

Variable:	Factor 1	Factor 2
1. Number Learning	.68	.16
2. Phonetic Script	.77	.01
3. Spelling Clues	.70	.09
4. Words in Sentences	.13	.97
5. Paired Associates	.59	.13

Table 4
Low Socioeconomic Level

Variable:	Factor 1	Factor 2	Factor 3
1. Number Learning	.66	-.16	.20
2. Phonetic Script	-.04	.11	.68
3. Spelling Clues	.03	.89	.10
4. Words in Sentences	.69	.22	-.02
5. Paired Associates	.24	-.02	.41

Discussion

In examining the criteria used by Wallach and Kogan (19) in constructing the creativity instruments, it would appear that they are limiting their measurement of creative thought to what Guilford (8) would consider as ideational fluency, or divergently productive semantic thinking. More than one kind of divergently productive semantic thinking, however, has been shown to exist (9); ideational fluency is but one of many components of creative intellectual behavior . . . but of particular importance to those who are interested in the language-thought processes.

Of major consideration here is the fact that the children from the two different socioeconomic levels appear to have different processes for creative thought. It appears that a change in the type of problem requiring divergently productive semantic thinking causes no change in the thought processes for the middle socioeconomic level sixth grade children but does cause a change in thinking processes for the low socioeconomic level sixth grade children. The factor structures show two factors in the creativity traits for the low socioeconomic group. One factor looks like Guilford and Hoepfner's (9) *divergent production of semantic implications*, being based upon the extrapolations and inferences the children make from lines, pictures, and names of objects. The other factor may be labeled *divergent production of semantic units*, as it is based upon the production of many ideas involving the attributes of/or multiple ways in which one object may be used. A clearer understanding of the causes underlying the differences between the two distinct socioeconomic groups with reference to divergently productive semantic thinking (or creative thought) may be indicated in future studies.

In considering the factor structures obtained from analyzing the Modern Language Aptitude Test, it was noted that here, also, different thought processes were apparent for the two distinct socioeconomic levels. As the differences were made clear in the analysis of the data, the underlying causes, substantiated by past research, may be discussed.

To understand why the low socioeconomic level children have more approaches to language than the middle socioeconomic level group, the language of their "world" must be considered. Children from the low socioeconomic level usually operate with two languages when they are of school age. One language, termed "public," is used

in the home or neighborhood. The other, termed "formal," is used at school where it is usually learned. The latter is used much less than the former by these children, but increases in use with age (2). It would appear that confusion between the two languages may develop or that, like bilinguals who have learned their second language in school, the low socioeconomic level children may develop different sets of referential meanings for the language learned at school (7, 10). Also, a child, accustomed to the combinations of the sounds in his "public" language, might not be able to recognize the combinations of the sounds of "formal" language. As Pavenstedt (12) pointed out, children from low class families form their words so poorly as to make it impossible to understand them at the age of three or four. In addition, Bloom, Davis, and Hess (3) indicated that the culturally deprived child has not had the same opportunity as other children in using language in the home; the language of the culturally deprived child is not as complex as that of other children either. Training, or lack of it, may be reflected in children's approaches to language learning.

It is also interesting to note that certain groups of adults (4) do not show the same differentiation of abilities contributing to language aptitude as do sixth grade children. Such a finding indicates the need for further research to involve individuals of all age levels.

Although some of the language-thought processes have been examined in this study, the small size of the sample of low socioeconomic level sixth grade children indicates the need for a replication study. Other studies might also involve further, more detailed comparisons of the language-thought processes in subjects of all ages, from various cultural backgrounds, as well as from all socioeconomic levels,

upper, middle, and lower. Such research may hopefully provide a guide to teaching through a better understanding of the individuals pertaining to the various groups (age, cultural, and socioeconomic level).

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Retention in Reading of Disadvantaged Children

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THE GENERAL OBJECTIVES of the San Antonio Language Research Project are to assess the effects of an experimental curriculum on oral language and reading development of disadvantaged Mexican-American children learning English as a second language. The research project, currently in its fourth year, has answered some questions. Specifically, the growth of expressive oral English has been rather vividly demonstrated by Ott (14) as a major positive outcome of the San Antonio experimental curriculum.

Findings of Horn (8, 9) and Arnold (1) have been less encouraging. Both writers describe frustrations resulting from the use of standardized assessment instruments in first and second grades. Arnold (2) found that the use of instruments standardized for second grade children were appro-

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priate, in terms of reliability, for the third grade disadvantaged children, even though the scores on the average were considerably below the normative group. Second year findings (1) did reveal some tentative positive outcomes in reading achievement for first grade children when the criterion for success was reading achievement rather than reading readiness. The assessment of reading achievement continues to be a major concern of the project, and further findings should be available soon for the third year.

The focus of this paper is on retention in reading over the summer vacation period of project children entering third grade. A review of the literature suggests that two types of research studies emerge on the topic of retention. The first is the laboratory type of research, which tends to study retention of pairs of words or syllables over a relatively short period of time. These studies are not too helpful to those who are concerned with how much of the curriculum children retain over the summer months. Studies of the second type, focusing on the specific question posed, have not been common in recent literature. These studies, though helpful, are not as well designed as one might desire. Based on the findings of these studies, one might tentatively conclude that studies of retention in reading of children in the intermediate grades point to a positive growth factor from May to September (4, 6, 10, 13). In the primary grades, however, two studies were found which suggested a loss in retention in reading over the summer months (3, 5), and one study, though reporting a small loss between kindergarten and first grade, considered the amount retained to be quite satisfactory (7). Further research in the area of retention in reading in the primary grades was deemed appropriate for the following reasons: a) the literature on the subject is neither conclu-

sive nor consistent, b) virtually no attention has been given the topic specifically with respect to disadvantaged children, and c) no investigation of retention within the San Antonio Language Research Project had been accomplished.

The central problem with which this study was concerned is the following: do any of the three experimental treatments differ in the degree to which children are able to retain or to build upon their knowledge and skills in reading during the summer months?

Procedures

Project children in this study were taught in one of the following three treatments: 1) Oral-Aural English (OAE). Children were given intensive English language instruction using AAAS Science as the content vehicle. 2) Oral-Aural Spanish (OAS). Children were given intensive Spanish language instruction using AAAS Science as the content vehicle. This treatment group differed from the OAE group in only one respect, the language of instruction. 3) No Oral-Aural (NOA). Children were given instruction in the AAAS Science material in accordance with the procedures described in the teaching manual. No intensive language instruction was involved. Children in all three experimental groups received instruction in reading in English from a basal reading program as prescribed by the district curriculum guide. Instruction for the OAE and OAS groups was delayed until after Christmas, but the NOA group was not delayed.

Two hundred eighty-seven children were randomly selected from the larger sample studied in the San Antonio project. These Mexican-American children met the criteria (11) typically established to define the disadvantaged. During the period of study, most of the pupils advanced from the second grade to the third. The major-

ity had received the experimental treatment for two consecutive years.

Pretest data were collected in early May 1966, and post-test scores were obtained in early September, 1966, approximately four months later. Tests used for both testing periods were as follows: 1) Metropolitan Achievement Tests (MAT), Primary Level 2, 2) Test of Reading, Inter-American Series (IAE) Level 2, and 3) Prueba de Lectura, Serie Interamericana (IAS), Nivel 2 (the Spanish equivalent of the IAS). Every test contained three subtests and a total score, all of which were used for comparative purposes.

Design of the study

Two interrelated questions were asked of the data: 1) had any significant change occurred during the summer months and 2) did the three treatments differ with respect to the magnitude or direction of any such change? The statistical procedure employed in dealing with the first question was the standard *t* test for difference between correlated means (12). Significance tests were conducted for differences

between the spring and fall means of each of the dependent variables used in the study. Since there was the possibility that the degree of retention would not be the same for all treatments, separate tests of significance were made for each combination of test and treatment.

The second question—that concerning the effect of the treatment variable upon the amount of change—required a somewhat more complicated statistical approach. For each pupil, the amount of change was expressed as the difference between his spring and fall scores on each of the tests. In each case, the fall score was subtracted from the spring score, thus improvement during the summer would be indicated by a negative difference score. For each pair of treatments, the means of the difference scores were compared through an ordinary *t* test for difference between independent means (12).

Findings

Table 1 presents the differences between the spring and fall means for

Table 1
Differences Between Spring and Fall Means by Treatment^a

TEST	TREATMENT		
	NOA N = 115 ^b	OAS N = 67 ^b	OAE N = 102 ^b
IAE			
Level	1.67**	-.43	.29
Speed	1.11**	-.58	.02
Vocabulary	-.14	-1.64**	-.06
Total	2.97**	-3.07**	.23
IAS			
Level	1.56**	.31	-.06
Speed	.69	.76*	-.11
Vocabulary	.30	-.76	-.15
Total	2.75**	.31	-.35
MAT			
Word Knowledge	-.05	-.88	-.66
Word Discrimination	.65	.00	.59
Reading	2.26**	.73	-.49
Total	2.40*	-.34	.58

^a Differences were computed in such a way that a negative figure indicates improvement and a positive figure indicates loss.

^b Due to missing data *N*s differ from the above by as much as ± 2 .

* Denotes significant change within the indicated group at the .05 level.

Denotes significant change within the indicated group at the .01 level.

each combination of test and treatment.

NOA. The performance of the NOA group, as measured by the total score on any of the three tests, declined significantly during the period of interest. The general loss in total score was accompanied by decline on the Level and Speed subtests of the IAE, the Level subtest of the IAS, and the Reading subtest of the MAT. In no instance did the NOA group exhibit statistically significant improvement.

OAS. The children in the Spanish treatment were found to have improved their English vocabulary (as measured by the IAE Vocabulary subtest) during the summer. General improvement on all the IAE subtests was reflected by a statistically significant increase in the mean of the IAE total score. On the speed subtest of the IAS, however, there was a significant decline in the performance of the OAS group.

OAE. The conclusion which seems most defensible in view of the data is that the performance of the OAE group remained stable during the summer months. Almost none of the minute differences detected in the OAE data

even come close to attaining statistical significance.

Comparison of NOA and OAS. The contrasting decline by NOA and improvement by OAS on the IAE resulted in significant difference between the two groups on each of the IAE subtests and on the total score (Table 2). Even on the vocabulary subtest—the only IAE subtest on which the NOA group did not show a significant loss—the OAS improvement was sufficient to guarantee significant difference between the change scores. As a group, the OAS pupils remained stable over the summer with respect to their performance on the IAS total. Again, however, NOA losses resulted in a significant difference between the groups. The remaining NOA-OAS comparisons failed to attain statistical significance, although the results were almost exclusively in the same direction (i.e., favoring OAS).

Comparison of NOA and OAE. The comparison of NOA and OAE (Table 3) produced results very similar to those obtained from the NOA-OAS analyses described above, at least when the IAE served as the basis for comparison.

Table 2
Comparison of NOA and OAS Difference Scores*

TEST	NOA Mean	OAS Mean	df	t
IAE				
Level	1.67	-.43	180	
Speed	1.11	-.58	177	-3.15**
Vocabulary	-.14	-1.64	179	-2.53*
Total	2.97	-3.07	180	-2.24*
IAS				
Level	1.56	.31	181	
Speed	.69	.76	180	-1.89
Vocabulary	.30	-.76	180	.14
Total	2.75	.31	182	-1.54
MAT				
Word Knowledge	-.05	-.88	181	-1.99*
Word Discrimination	.65	.00	181	-1.16
Reading	2.26	.73	181	-1.08
Total	2.40	-.34	182	-1.41
				-1.53

* Indicates difference between means of change scores significant at .05 level.

** Indicates difference between means of change scores significant at .01 level.

* Negative difference indicates improvement

The two significant comparisons based upon the IAE—the level subtest and the total score—both yielded differences in favor of OAE. On the IAS, the level subtest and the total score also produced significant differences favoring OAE. The greatest difference (in terms of statistical significance) between the groups, however, was found on the Reading subtest of the MAT. Since the improvement within the OAE

group was not significant for any of the tests, the NOA-OAE differences may be largely attributed to the decline in the performance of the NOA group.

Comparison of OAS and OAE. As is indicated in Table 4, the improvement of the OAS group on the IAE Vocabulary subtest and total score produced significant OAS-OAE differences in the means of the change scores on these two variables. The differences be-

Table 3
Comparison of NOA and OAE Difference Scores*

TEST	NOA Mean	OAE Mean	df	t
IAE				
Level	1.67	.29	215	-2.15*
Speed	1.11	.02	213	-1.87
Vocabulary	-.14	-.06	213	.14
Total	2.97	.23	215	-2.34*
IAS				
Level	1.56	-.06	218	-2.64**
Speed	.69	-.11	216	-1.67
Vocabulary	.30	-.15	217	-.83
Total	2.75	-.35	219	-2.90*
MAT				
Word Knowledge	-.05	-.66	216	-1.01
Word Discrimination	.65	.59	217	-.09
Reading	2.26	-.49	218	-3.29**
Total	2.40	.58	218	-1.03

* Indicates difference between means of change scores significant at .05 level.

** Indicates difference between means of change scores significant at .01 level.

* Negative difference indicates improvement.

Table 4
Comparison of OAS and OAE Difference Scores*

TEST	OAS Mean	OAE Mean	df	t
IAE				
Level	-.43	.29	167	1.16
Speed	-.58	.02	166	.94
Vocabulary	-1.64	-.06	164	2.32*
Total	-3.07	.23	167	2.53*
IAS				
Level	.31	-.06	169	-.57
Speed	.76	-.11	168	-1.75
Vocabulary	-.76	-.15	169	.99
Total	.31	-.35	169	-.61
MAT				
Word Knowledge	-.88	-.66	167	.34
Word Discrimination	.00	.59	168	.86
Reading	.73	-.49	167	-1.12
Total	-.34	.58	168	.47

* Indicates difference between means of change scores significant at .05 level.

** Indicates difference between means of change scores significant at .01 level.

* Negative difference indicates improvement.

tween the two groups on the other dependent variables, however, were inconsistent in direction and nonsignificant in degree. On most of the measures used in the study, the mean performance of both groups remained at the same level during the summer.

Summary of Findings. The NOA group showed consistent and in many cases significant losses, indicating failure to match their spring performances when retested in the fall. The OAS pupils, on the other hand, registered significant gains on the IAE, although a loss was noted on the speed subtest of the IAS. The OAE scores were, on the average, roughly equal at both testings. Retention thus appears to have been poorest in the NOA group. The OAE and OAS groups did not differ significantly in retention except on the IAE, where the differences favored OAS.

Conclusions

When difference scores are used as criteria for comparing groups, there is always a danger of finding spurious differences arising from errors of measurement. In the present study, however, the high level of significance attained in so many of the statistical tests tends to cast doubt upon this interpretation. Nevertheless, it should be noted in this context that the NOA group did indeed have the highest mean score on most of the tests at the Spring 1966 testing. There is no absolute assurance that this "error hypothesis" is not the proper explanation of the results.

The consistency of the comparisons, however, above and beyond their significance, certainly appears to indicate that the oral-aural methods of instruction facilitate retention in reading during the summer months. With but two exceptions, all of the NOA-OAE and NOA-OAS comparisons favored the oral-aural treatments (although not always significantly). In the two cases

where the NOA group was not found deficient, the differences were trivial—less than one-tenth of a point.

Of course these results do not indicate the reason for the superiority of the oral-aural treatments. It does seem likely, however, that experimental language patterns and vocabulary learned orally might very well continue to be used in conversation during the summer. Material learned in written form and not reinforced by oral language, on the other hand, would seem subject to deterioration from disuse.

One of the more interesting features of the results is the apparent transfer of the oral-aural learning from one language to another. The evidence for this characteristic is to be found in the fact that the oral-aural treatments tended to excel the NOA in retention on both Spanish and English tests, regardless of the language used in instruction. This interpretation would also tend to explain the relatively infrequent occurrence of significant difference between the OAS and OAE treatments.

There is, however, one very puzzling aspect of the data which is left unexplained. The only significant differences found between the OAS and OAE groups were on the IAE—an English test. Why the group instructed in Spanish should show significantly greater retention on an English-language test is a question for which the present data simply do not seem to provide an answer. Perhaps the research now in progress will ultimately yield some reasonable interpretation of this very perplexing result.

The current study has provided some new questions as well as, hopefully, some answers. Although there seems to be no convenient explanation for the superiority of the OAS group over the OAE in retention on the IAE test, it does seem clear that the oral-aural treatments do indeed provide a more solid basis for retention in read-

ing than does a comparable treatment without the oral-aural component.

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Effect of a Special Program in Literature on Vocabulary and Reading Achievement

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THIS RESEARCH was based on the premise that if a child wants very much to learn to read, and has an adequate oral language base from which to interpret the symbols for his language, any one of the several teaching methods could be helpful to him. The focus of this research was therefore not on a method of teaching reading, but on a way of getting children who normally do not understand what wanting to read means (aside from its status value), to want to read because reading means pleasure and enjoyment. It is known that children of the background represented in this research are likely to have had little contact with books as a source of pleasure. It is recognized, too, that they are children whose total life experience is likely to have been more, rather than less, limited in variety of experience. Limitations in language almost inevitably accompany limitations in experience. Thus, it was assumed that, among the disadvantaged second graders of this research, insufficient motivation and insufficient oral language were root causes of their difficulty in learning to read.

In searching for a means to achieve the dual goals of giving children a zest for books while strengthening the oral language base so necessary to reading skill, several insights from child development and from research and theory in language development were taken into account. From child develop-

ment, which views growth and learning as a dynamic, integrated process, was drawn the knowledge that children must be ego involved in order to learn. From White's theory of competence came the faith that children's own desire for competency would stimulate them to learn, if they but knew why. Learning itself was interpreted as having value when it is assimilated by a child and made his own, not when it is repeated in parrot fashion for a reward. All this meant that, by whatever means adults attempted to heighten motivation and strengthen oral language in disadvantaged young children, the concerns and interests of the children themselves would have to be tapped for their fullest engagement.

Theoreticians in language development tell us that children learn language aurally. They learn it from a model of the language, but simple imitation of the model is not enough. Language is learned within a framework of interaction. From the beginning, a child learns to speak as a response. He does not parrot. He uses what he has learned by assimilating the model and then adapting it to entirely novel combinations of the model he has heard in order to meet the demands for interaction. He learns to speak as part of a human relationship in which communication serves human purposes.

Literature was chosen as the vehicle best suited to accomplish simultaneously the dual purpose of stimulating motivation and strengthening oral language, because literature fulfilled all the requirements to answer the children's needs. Stories appropriately chosen can engage children emotionally: pleasure in books grows out of hearing stories; and book language, heard through the ears, can be assimilated as part of the total experience in which children and story interact. In addition, literature is a mirror for all human experience, and one can choose

stories of human experience that are real, yet comprehensible and important to children. There are universal childhood experiences that cut across class, color, ethnic, national, and sex lines. For example, in *Nobody Listens to Andrew*, children readily identify with the frustration of not being believed by adults even while being patted on the head; the fear and the conquering of fear that appear in *Timid Timothy* or *Scaredy Cat* reflect a widespread phenomenon of childhood. The victory of outsmarting authorities, the underlying theme of *The Five Chinese Brothers*, surely represents a universal childhood wish; and Ferdinand's calm persistence in being different is an affirmation of the struggle to be oneself.

Stories were chosen, accordingly, in relation to the following criteria:

1. Events, concepts, and relationships must be within the scope of young children's conceptual grasp. The stories shall deal with the universal in childhood experience regardless of class and ethnic variation. Stories shall be of the here-and-now, realistic type, but not primarily informational in intent, nor necessarily familiar in detail. Language, plot, and character must enhance a story that is pleasurable and interesting to a young child of about seven. Since the children of this study were assumed to be linguistically unsophisticated and limited in general range of experience, books were geared to a somewhat younger level of maturity than might be selected for middle class seven year olds. This meant that while the basic plot would interest all seven year olds, degree of complexity and length of story were more suitable to younger children.
2. The stories must allow for emotional identification with characters, aspirations, fears, mishaps, or other feelings and adventures within the range of childhood experience, such as occur regardless of class, and to an extent, regardless of cultural specificity.
3. The stories shall be written in language which flows naturally and best conveys the precise idea or colorful image to the juvenile listener. Language shall not be confined to a single grammatical structure nor a fixed sentence length. Sentence length and complexity need to be intrinsically related to the theme and character of the story but not of such length and complexity that a young child cannot follow the development of the

thought from the beginning to the end of the sentence. There shall be no limitations on vocabulary, either of type of word or number of syllables. All vocabulary likely to be unfamiliar to the children shall be so used in the story that meaning can be readily inferred from the context, illustrations, or explanation by the teacher. Language shall deal with the concrete and sensory, rather than with abstractions or difficult time-space relationships.

One hundred titles conforming to the above criteria were selected by the investigator and submitted to a panel of 3 children, librarians and a teacher of children's literature. All were familiar with disadvantaged children from first hand experience. The approvals of these experts formed the basis of the final fifty titles used in each of ten experimental classrooms. Children for the study were chosen from seven special service schools in New York City, all of which had a low socioeconomic population made up, for the most part, of Negro and Puerto Rican children. Experimental and control classes were matched for their position on the grade in these homogeneously grouped schools, giving top, middle, and low placements for the study. All experimental and control classes were taught reading by a basal series, all had the same prescribed curriculum, all teachers were certified and had at least a year of experience, and all teachers were recommended by their school principal as being of average competency.

Teachers were asked to proceed with their programs as usual, but were to take the time once each day to read one of the stories to the children. The teachers were at first reluctant to give the time to this. They felt strongly that the teaching of reading skills was taking up every bit of time they had. When they were persuaded to participate in the study, a manual describing how to read a story with drama, good phrasing, suspense, and delight was given to them. They received two in-

structions pertaining to the use of the stories: 1) Enjoy the reading. 2) Clarify meaning of unfamiliar words in a variety of possible ways (suggested in the manual) without seriously interfering with the flow of the story.

In acknowledgement of the children's inexperience in listening to stories, the books were divided into three categories according to length, complexity of plot, and sentence structure. Teachers were asked to read from Group 1, the shortest and simplest stories, before moving on to Groups 2 and 3. Once read, a story could be read as many times as the children or teacher chose, without attention to the categories of difficulty. The fifty books in each experimental classroom were on open shelves, and children could browse freely among them. This, in fact, they did, and going to the books became a favorite choice of the transition pastimes allowed after prescribed work was completed.

It took several months of daily reading before teachers could sense changes in their classes. The slower the class, the longer it took for the listening experience to become meaningful. But it did become meaningful because the stories were so relevant to what children feel and understand. They pored over the pictures, studied them and copied them, although they were never told to copy. They copied the titles and eventually copied phrases and sentences onto the pictures they drew, although they were never told to do that either. The teachers said there was more and better discussion about more things following the story reading than any other area of the curriculum. The reading lessons in the experimental classes ceased to be an hour of resistance, although resistance was still apparent in the matched control classes. Although the overall program remained closely tied to the syllabus for the grade in New York City, it was

the feeling of teachers and principals that something had happened to the teachers' relationship with the children as a result of their sitting back in relaxation and enjoyment for a half hour each day to share a well-written piece of literature.

The study began with almost six hundred children in twenty classes. At the end, data were analyzed for 285 children, 155 in experimental classes, and 130 in control classes. All children were tested twice, once in October before the story reading began, and again in June at the end of the experiment. All children were given the Metropolitan Reading Achievement Test, Upper Primary, Grade 2. All children were given a free association vocabulary test in which every child wrote, without concern for spelling, any word he could recall in twenty minutes. (This free association vocabulary test has been validated as a vocabulary measure.) The results showed statistical superiority of the experimental classes over the controls as follows:

Word Knowledge	.005
Reading Comprehension	.01
Vocabulary (quantity)	.005
Word-discrimination skills—both groups were the same (yet <i>reading</i> and <i>vocabulary</i> were superior in one group).	
Quality of vocabulary was superior among the top experimental classes. For the entire group, superiority was narrowly missed at the .05 level of significance.	

The superiority of the experimental group did not, after this one year, produce reading scores on grade level for all the children. Only the upper third of the children were on grade level or above. For the lowest group, or the bottom-of-the-grade children, a startling reversal of the trend to failure appeared. Whereas the slowest children among the controls never got off the ground at all, thus registering what appears statistically as a regression, the slowest children among the experimental classes inched forward. The

difference between the mean performance of the control and experimental classes in June was six months.

It is the conclusion of this research that children from impoverished backgrounds must be exposed to a rich diet of literature which has childhood appeal, and allows them to respond and become emotionally involved. As a result of such intense daily exposure, the language of books will become part of their linguistic awareness and strength. At the same time, their desire to read will be so great that they will meet us more than halfway as we offer them the specifics of the skills.

Relationship of Teacher Rigidity to Progress of Retarded Readers

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WHILE NOT PURPORTING to hint at the possibility of evolving a rationale for ameliorating reading disability in children, it is hypothesized that certain teacher personality factors may be positively related to reading improvement (apart from considerations of methodology and materials). On the basis of continued research in the field of rigidity patterns and the authoritarian personality, concerns about the rigid teacher in relation to the diversity of behavioral and learning patterns in children have become apparent and command a closer scrutiny.

The present research is offered as a direction toward which investigators may look for tentative approaches to questions involving the importance of the teacher's personality in relation to children with reading problems.

The purpose of this investigation was to determine whether children with reading disability demonstrate different rates of reading achievement in relation to the degree to which their

teachers manifest social and cognitive rigidity.

Definitions

Social rigidity is defined as inflexibility of attitudes regarding different racial or religious groups or left-of-center political ideology. Inherent is a resistance to change of certain specific social beliefs (15, 6). It is measured herein by the F-Scale (1).

Cognitive rigidity is defined as the resistance to change of systems of beliefs; a total dogmatic or authoritarian configuration of ideas and beliefs organized into a relatively closed system (15). The important element here is not what people think, but how they think, and in essence implies an inflexibility of ideational process which implies inflexibility of cognition. It is measured herein by the Dogmatism Scale (15).

Basic hypotheses

A vast majority of researchers have encountered limited success in their efforts to find significant factors which correlate with teacher competence. Recently, however, questions have been raised regarding the need for more study relating to teacher competence and rigidity, and ways of experimentally dealing with this problem (4). Some recent research in this field was based upon the rationale that rigidity is indicative of inflexible behavior and resistance to change. Furthermore, this rigidity was found to interfere with certain learning processes of a selected group of students (13).

It is recognized that no two individuals are identical, and their similar symptomatic behavior can be attributed to diverse dynamic entities. Children with reading problems undoubtedly differ in many aspects of characterological structure, attitudinal stance, and basic personality dynamics. It would seem conceivable, therefore, that the more flexible, less dogmatic

teacher would have greater freedom or range of means for coping with such diversity of educational and psychological factors, and that such characteristics of the teachers might well be demonstrable in the achievement gains of their student population.

Thus, the following hypotheses were proposed:

1. There would be a significant positive relationship between teachers' social rigidity and cognitive rigidity patterns.

This relationship was hypothesized because other research had indicated a correlation of .64 between the F-Scale and the Dogmatism Scale (15). Moreover, since both scales are indices of rigidity patterns, a low correlation might have ruled out the possibility that the measures serve to indicate differentiated but similar attitudinal responses.

2. Children taught by teachers who manifest a low degree of rigidity would gain significantly more in reading than children taught by teachers who manifest a high degree of social rigidity.

3. Children taught by teachers who manifest a low degree of cognitive rigidity would gain significantly more in reading than children taught by teachers who manifest a high degree of cognitive rigidity.

4. Children taught by teachers who manifest a combination of low social and cognitive rigidity would gain significantly more in reading than children taught by teachers who manifest a combination of high social and cognitive rigidity.

Need for the study

Children spend over five hours a day with their teachers, which is more time than they spend with their parents. Yet, less is known about the teacher-pupil relationship than about the parent-child relationship (2). Despite a plethora of studies in the field of teacher competence, relatively little

more is known now about the teacher's role than sixty years ago (7). Moreover, the role of the teacher in relation to the retarded reader is likewise unclear. The treatment of the child with reading disability has been under study for some time, however, and many factors have been reported which are influential in the remediation of reading retardation.

Gowan cited motivation, interest, peer socialization, and attitude as factors affecting the retarded reader (8). Bierman noted a relationship between parent attitudes and their children's achievement (2). Money discussed the influences of neurological development and neurological impairment as influences on the learning process (12). Liss reported that considerable evidence exists that emotional adjustment affects learning patterns (10).

An experimental method is still being sought which would reveal more fruitfully how the teacher functions as an influence on the learning process and rate of reading growth of the retarded reader. While many studies have pointed to the fact that teacher personality traits lie at the root of teacher influence, none have reported significant findings dealing with characteristics which affect learning (16).

To derive meaning from the role of the teacher in her relationship with the retarded reader, a facet of personality yet to be studied intensively is being proposed as the realm of this investigation. The dimension of rigidity as it might influence the teacher-learner relationship is hypothesized as a possible influence on the learning rate of children with reading problems. Teachers who reflect relative inflexibility in their contacts with pupils may not be able to adjust to children with reading difficulties because of the wide ranges of problems causing reading disability and the wide ranges of behavior manifested by children with reading disability.

The province of this study, then,

is to determine whether different aspects of rigidity patterns of teachers are related to the reading achievement gains of their children who read below grade level.

Related literature

The related literature of this investigation dealt with the multicausality of reading disabilities, research on teacher competence, and various aspects of rigidity. The literature related to reading disability was presented to show the diversity of causes of reading problems as background information pertinent to the question of the need for teacher flexibility.

Studies on teacher competence were presented in an attempt to demonstrate which areas, if any, of teacher behavior or characteristics were significantly related to teaching success. No major characteristic was found in the literature to be significantly correlated with teacher competence, despite the wide range of studies.

The dimension of rigidity was explored in terms of studies in general trends in the field of rigidity, studies relating to social rigidity, cognitive rigidity, and finally, studies dealing with the relationship of teachers to rigidity measures. In the latter area, literature was available only in studies involving the F-Scale because of the relative newness of the Dogmatism Scale.

Procedure in collecting data

In order to test the hypotheses of this study the following procedures were carried out. All white teachers of grades three through six in a Westchester, New York school system (population, 65 percent white, 35 percent black) were administered the F-Scale and Dogmatism Scale. Children in these grades, whose reading levels at the beginning of the year were one year or more below grade level, and whose IQ's were within one standard deviation of the norming population

were included as the sample of the student population. From the total of 800 children in these grades, 159 were selected who met the criteria of intelligence and reading level (IQ's of 86-114 on the Kuhlmann-Anderson Test, and one year or more below grade level on the Metropolitan Reading Achievement Test).

These children were retested at the end of the school year to determine the extent of their reading achievement gains. Reading gains of these retarded readers were compared between teachers who manifested low and high rigidity patterns in order to determine what relationship, if any, existed between reading achievement gains of retarded readers and teachers' rigidity patterns.

Results

No significant relationships were found between social rigidity and combined social and cognitive rigidity patterns of teachers (although the two were found to correlate with a .68 correlation) and the reading achievement gains of retarded readers.

Significant differences were established between cognitive rigidity patterns of teachers and reading achievement gains of retarded readers. The low cognitive rigidity group manifested significantly better results ($p < .05$) than the high cognitive rigidity group in the reading achievement gains of retarded readers.

Theoretical aspects

Rigidity is conceived of as a pattern of behavior which reflects resistance to change. This resistance could be explained as manifested by conformity of behavior, compulsiveness, closed mindedness, intolerance of ambiguity, and antiminority attitudes.

Since rigidity patterns indicate a resistance to change, recognition of why this resistance might relate to the reading achievement of retarded read-

ers needs to be examined. Our public schools, as public institutions, are generally middle class oriented. That is, they are academically oriented; children's behavior patterns are expected to reflect compliance and cooperation; children's interests are expected to reflect traditional white middle class goals. Culturally, children are expected to relate to the artifacts of the dominant middle class. In addition, teachers and administrators are middle class oriented. They demand academic orientation and motivation, compliant and cooperative behavior, and interests and activities which conform to the generalized norm (14).

Teachers, regardless of their rigidity patterns, may do creditably well in the teacher-learner process with children who "follow the rules." Problems may arise, however, for teachers and children when there is deviation from this mythical norm. Children who do not learn as well as other children interfere with the attitudinal and behavioral stance of certain teachers. In order to cope with the problems presented by retarded readers, for example, teachers must change their outlook, their mental set, their behavior, their materials, methodology, and their attitude. For teachers to be able to effect such inner changes, they must be flexible, open to change, available to learn new ideas, and be able to accept children who are different from their preconceived notions regarding how children should react.

To determine if teachers are thus flexible, and then to determine if this flexibility is a significant factor relating to children's learning behavior, this study was promulgated. Questions about teacher inflexibility have been raised in various studies (4), but no research has thus far been reported which deals with the problems raised in the present study.

Studies of rigidity and its relationship to many other factors have been

carried out and significant results have been reported. Significant relationships have been found between rigidity patterns and perseverative behavior in children (6), memory changes (5), aggression dreams (11), and response to new music patterns (15).

Rigidity, as evolved in the research, is a dimension of behavior which has many facets. Social rigidity, as measured by the F-Scale, is reflective of anti-minority feelings, conservatism, and out-group aggression. Perceptual rigidity, as measured by the Gottschaldt Embedded Figures Test and Necker Tube Test, was related in studies to learning patterns and perception (17). Cognitive rigidity is reflective of a pattern of closed-mindedness, general authoritarianism, and other structural aspects of people's beliefs. Rokeach's investigation into the realm of belief structure was prompted by the extensive study of the California group which developed the F-Scale (1). Rokeach hypothesized that a rigidity pattern was being expressed by low F-Scale scorers, and that this pattern was not adequately understood. Thus, the Dogmatism Scale was developed to reveal the general rigidity of the non-ethnocentric, non-conservative person as well as the rigidity of the high F-Scale scorer.

While both the F-Scale and Dogmatism Scale were designed to reflect psychoanalytic concepts relating to parental authority and its manifestations and variations, the province of this study was not to test their hypotheses, but merely to utilize the tests as measures of rigidity patterns. The determinants of rigidity may have many bases, but the behavioral manifestations of rigidity are evident in the classroom and are reflected reliably and validly by the instruments herein

Implications of the study

The findings regarding the significance of cognitive rigidity patterns and their relationship to reading gains of retarded readers suggest certain implications in the following areas: teacher training, classroom grouping procedures, reading improvement programs, and school integration policies.

Teacher training. Teacher training programs involve preteaching training, in-service training, and group therapeutic programs. Graduate students entering the teaching profession do so bearing with them all the prejudices, closed-mindedness, and narrow middle class orientation with which they have grown up. Misconceptions about children's development and problems are considerable, particularly about children who are different from the "expected" norm. An education program which incorporates the reality of differences among children with the importance of the teacher as one factor of the teacher-learner process must be developed. The promulgation of such a program, including observations, periodic student teacher-pupil interviews with pupils of diverse backgrounds and abilities, adequate supervision which, in part, focuses on the question of diversity and the variety of needs of all children, should be considered by teacher training institutions.

In-service training programs should focus, likewise, on the reality of diversity of the pupil population of their schools. How teachers may meet questions raised by the meaning of diversity would also be an important aspect of an in-service program contributing to the improvement of education for all children.

There are some teachers for whom a group therapeutic program might be an adjunct to an in-service program. A study which showed that group therapy contributed to the lessening of prejudice of adult counselors indicated that group psychotherapy might be an

effective tool (9). The program cited dealt directly with problems of prejudice and rigidity in veterans' counselors. Their rehabilitation give evidence of the use of an additional tool for teacher change.

Grouping procedures. Among problems facing educators, particularly administrators, is one concerning classroom organization. All administrators are faced with the task of organizing their classrooms for effective instruction. There are many grouping patterns followed. Generally, they are decided in terms of administrative attitudes regarding the fairness of placement of teachers with certain low achieving or high achieving groups. This placement is often made regardless of personality factors of teachers. Thus, the low achieving group, which might need a flexible, open-minded teacher, may be led by a rigid teacher every year or every other year at best. The education of the children then becomes secondary to the interests of the administrative and teaching staffs.

Whatever pattern of grouping is evolved in a school system, implications of this study suggest that the dimension of teacher rigidity be considered as an aspect of pupil-teacher placement. As noted in a recent study, teacher-pupil fit should be considered as an important facet in grouping (18).

Reading Improvement programs. Much work has been done concerning the various factors which affect reading improvement. Consideration has been given to children's emotional adjustment, intelligence, cultural background, parent education, methodology, and materials. It would seem consistent with good educational practice that a less rigid classroom or remedial teacher be employed to work with retarded readers because of the possible lessened effectiveness noted in teachers with high cognitive rigidity patterns.

School integration policies. The di-

versity of backgrounds of children reflected by the expanding minority group representation in the classrooms of our formerly all-white schools, could create a threat to the rigid teacher, as well as a denial of good education to minority group children. Cultural difference, language differences, and differences in learning patterns of children from multiracial backgrounds might have a considerable impact on the teacher who is very rigid. The inability of the highly rigid teacher to accept children who reflect these differences may need to be further investigated in order to provide the educational setting within which all children may learn to their own capacities.

Limitations of the study

It is to be noted that the population for this study consisted of a relatively small group of teachers in a selected school system. In addition, the nature of the school system, an integrated school, creates a certain milieu for which teachers are carefully selected. Therefore, the generalizations made must necessarily apply to this particular population, and more extensive study is necessary before applying the conclusions of this study to other populations. It is suggested, however, by implication, that other teacher populations in less sophisticated surroundings might be even more appropriate for a study of this nature.

It is also recognized that the tools available for measuring rigidity patterns may need further refinement. As indicated by Christie, "The F-Scale is one of the most intriguing psychosocial instruments ever constructed. It is, in many ways, a psychometric nightmare for measurement purists. On the other hand, it has been found to be correlated meaningfully with a wide variety of important social and personality variables" (3).

A statement by Rokeach regarding

the Dogmatism Scale further reveals the concern about attitude questionnaire tools which are developed to reflect a personality concept. "These reliabilities are considered to be quite satisfactory, especially when we remember that the Dogmatism Scale contains quite a strange collection of items that cover a lot of territory and appear on the surface to be unrelated to each other" (15).

In terms of the scales used and the factors they purport to measure, it is further recognized that certain other social or cognitive rigidity patterns may exist which were not measured by either scale.

Further limitations are raised in terms of the factor used to measure teacher success. The use of achievement data singles out only one important variable about which educators must be concerned: Other variables might be students' behavior patterns, motivational patterns, and attitudes toward oneself and others.

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An Analysis of Teacher-Pupil Interaction Patterns

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AMPLE STUDIES over the years have clearly indicated that the teacher is the most important variable in reading achievement of children. Numerous studies of the subject of materials and approaches on achievement serve only to support the importance of the teacher and teacher behavior as the critical factor in children's learning. Consequently, the last decade has seen a rising concern with teacher-pupil interaction as a focal point for research.

Most of the studies developed during this period, while focusing on teacher-pupil interaction analysis, have

concentrated upon such diverse variables as the emotional climate of the classrooms, the content and/or quality of interaction, the structure of spoken language used by teachers and pupils, and the role of interaction upon the processes of convergent and divergent thinking. Little research to date, however, has been singularly devoted to analyzing and describing the interaction process as it relates specifically to a particular content or subject matter area. Nor do we find much research attempting to isolate, identify, and describe the possible causative factors responsible for the interaction and structure of the process itself.

There can be little doubt that interactional factors are an integral part of traditional instruction. Verbal interaction between teachers and children and among children themselves certainly tends to occupy and consume major portions of instructional time. Yet, despite its obvious significance to both instruction and learning, none of the studies undertaken to date has explored the possible influence of external elements to control the nature and direction of the interaction ongoing between teachers and pupils in the classroom.

Discovery and measurement of such relationships, if they do exist, is of vital importance to education in general and curriculum design in particular.

Purpose of the study

The purpose of this study then was to determine, if possible, the answers to the following questions:

1. Is there a significant relationship between the interactional patterns of teachers and pupils and external elements, such as materials and approaches, when they are incorporated in the classroom instructional period?
2. Do teachers using the same materials tend toward convergent behaviors during instruction regardless of divergent variables such as personality, background and training?
Do teacher's behaviors tend to persever-

ate when the same materials are used daily for instruction?

The null hypothesis tested in the study was that teacher-pupil interaction patterns do not vary significantly when a basal reader approach is used in reading instruction.

Procedures

Until recently, efforts to study this area of behavior were handicapped by the lack of instrumentality capable of assisting the researcher in the objective measurement or description of the interaction process occurring during a specific content or subject matter instructional period. With the emergence of the Reading Observation Record (ROR),* developed solely to record a reading group interaction, a variety of avenues for exploration of the reading group process is now open.

The ROR is essentially a device to record only verbal behaviors of teachers and children. Although the total interaction process obviously consists of more than verbal behavior, our exclusive emphasis in this study on verbal interaction is supported by the positions taken by previous researchers in this area, 1) that individual verbal behavior is an adequate sample of total behavior and 2) that verbal statements are consistent with all other aspects of behavior.

This study began in the fall of 1966 and concluded in the spring of 1967. Twenty-four third grade teachers were randomly selected from the total third grade teacher population of a large suburban school district. These teachers were asked to voluntarily participate in a reliability check of the recording instrument (ROR). They were informed that two trained observers would observe the reading group in action at two different times to determine

*Slobodian, June J. "An Analysis of Certain Dimensions of Teacher Behavior During Reading Instruction in the First-Grade, dissertation, Kent State University, March 1966.

the ability of both observers to observe and record identical elements of the interaction process. The teachers, using the same basal reading series for instruction (Ginn, 1961), and their students served as subjects for the investigation.

The observer team selected to participate in the study was one of several previously trained by use of tapes and field practice with an inter-observer reliability correlation of .95 established.

The readiness section of the basal reader approach was observed each visit. Two visits, approximately three weeks apart, were made to each classroom. Only the same teacher and the same group were observed.

The grade level and reading ability levels of the group were also consistent for each visit. Both the higher reading ability groups and the readiness portion were selected for purposes of the study because it was assumed that both were particularly conducive to allowing for greater variability of teacher and pupil creativity and involvement.

Because only verbal behavior was to be recorded, certain basic assumptions were necessary: 1) units of interaction were defined as consisting of all categories recorded from point of initiation to a terminal point marked by a new initiatory section, 2) those units initiated by the teacher would be considered as exclusive of influence by preceding units, and 3) those units which were obviously "triggered" by preceding verbal actions would be considered inclusive and recorded as a continuing unit. Each unit of interaction was identified by established criteria as a "pattern" of behavior and so tabulated for each visit.

Once the patterns of behavior were identified and tabulated, chi-square analysis for each visit was applied and dominant patterns of behavior and levels of significance determined. The statistical treatment was applied

to whole populations as a group for each visit, and levels of significance were determined.

Results

Five distinctive patterns of verbal behavior were identified from the units of interaction previously defined in the study. They were as follows:

Pattern 1. Teacher initiated (TOR) unit originating with teacher talk, followed by teacher question, and terminated by a student response. The teacher initiated unit may include reinforcement or rejection of response, but this was not essential to the composition of the unit.

Pattern 2. Student initiated (SQR) unit beginning with student talk or student question, and concluding with a response by the teacher or another student. This unit may include reinforcement or rejection, but this was not essential to the composition of the unit.

Pattern 3. Question initiation (QR) by the teacher opens this unit. The question must be followed by a response in order for a complete unit to take place. This unit may include reinforcement or rejection, but this was not essential to the composition of the unit.

Pattern 4. The question-multiple response unit (QMR) consists of one question followed by many individual responses, not in unison but individually heard. The identifying factor is that of the quantity of response flow as a result of one question, without teacher prodding or prompting. The question may originate either with a teacher or a student. This unit is marked by the flow of interaction between members of the group, rather than between an individual in the group and another individual, either teacher or fellow students.

Pattern 5. This pattern is an incomplete unit. Examples are as follows: Teacher initiation of a talk unit,

no follow through in terms of response. Teacher initiation of a question unit, no follow through in terms of response. Teacher initiation, and self response. Student initiation, and no response.

None of the patterns which were revealed was assumed to be dependent on any other interaction pattern for initiation. All patterns, therefore, were considered as independent, each pattern having equal likelihood of selection in the interaction process. Thus, it was possible to plot the patterns of a chi-square table for purpose of analysis.

Each classroom interaction record was analyzed to determine the influence of chance upon the pattern profiles of teachers and groups. Of the five patterns identified, the dominant pattern of behavior was determined and noted. On the first observation visit, nineteen groups showed significantly dominant pattern profiles. Of the twenty-four groups, the dominant pattern for twenty-two was Pattern 3, and for one, Pattern 1. One group showed equal dominance in Patterns 1 and 3. The heavy weighting of Pattern 3 as the dominant pattern in the first observation must be considered as significant in itself.

There were twenty-three significantly dominant pattern profiles among groups as observed during the second visit. Of these groups, Pattern 3 was the dominant pattern for twenty-three groups, and Pattern 1 for one group. The heavy weighting of Pattern 3 in the second observation must be considered significant in itself.

Among the groups observed in the first visit, eight groups had insufficient numbers of tallies to meet requirements of 1×5 chi-square analysis. Five of these were analyzed by consolidating talk initiated categories and question initiated categories using a 1×2 chi-square table. Three groups

were unsuitable for analysis by this method.

Among the groups observed in the second visit, five groups had insufficient number of tallies to meet requirements of 1×5 chi-square analysis. Four of these were analyzed employing the consolidation of cells processed in a 1×3 chi-square table. One group remained unsuitable for analysis by this method.

The overall patterns of the teacher-pupil interaction observed on the first observation and the second observation did not change significantly. The patterns of both observations, when analyzed by 1×2 chi-square table, remained significantly the same for individual groups ($\chi^2=16.66$ $p>.001$).

The data showed that one pattern of interaction behavior dominated the reading readiness instructional period of teachers using the basal reader approach. Teachers and groups did not modify their behavior significantly from one instructional period to another. Thus, the null hypothesis originally stated can be accepted.

Conclusions

The results of this study are basically descriptive in nature, imposing no qualitative inferences upon the interaction patterns identified. The study itself was essentially a "tooling" device to give direction and impetus to further studies of a more qualitative nature in the future.

If, as the research presently completed would indicate, the material (basal readers) influences teacher behavior and thus interaction between teacher and children, curriculum planners need to study materials very closely before making wholesale adoptions. Materials should be very carefully scrutinized not only for content validity but also for possible effects upon the interactional process. Many published materials, such as the

basal readers, usually include very comprehensive and carefully structured directions for implementation of instruction. These teacher aids have, generally, been so thoroughly developed that they include precise suggestion and language for day-by-day, hour-by-hour, period-by-period instruction. While such directions are clearly labeled as suggestive rather than prescriptive, the extensive structure and detail tend to imply a "right way" or "only way" rather than to encourage the teacher to creatively adopt or supplement the material to her instructional program. It would appear reasonable to conclude, therefore, that these materials originally designed to assist the teacher in the instructional process effectively serve to constrict teacher creativity and diversity and, instead, foster comparatively identical instruction practices in all or most classrooms using such materials.

Implication for further research

The findings of this study raise several interesting questions that warrant further investigation:

1. Do teacher-pupil interaction patterns vary significantly when different types of materials or approaches are utilized?
2. Can we identify and measure certain patterns of teacher behavior which produce significantly higher achievement performance in pupils?
3. Assuming we could identify and describe desired teacher-pupil interaction patterns, can we help teachers to evaluate their own patterns and modify them accordingly?
4. Can we produce desired teacher-pupil patterns of interaction by the incorporation of selected and controlled materials or approaches?

As a result of the initial study reported, a follow-up design was de-

veloped to test the hypothesis: A teacher cannot change her behavior in reading instruction at will even though she is made aware of her instructional patterns and is encouraged to alter these patterns in a specific way.

At the present time we are not in a position to tell whether or not the hypothesis can be accepted. As we collect the data, however, it begins to become evident that teachers feel many frustrations when asked to move away from the security of the teacher's guide. It will be interesting to note whether, in fact, they can move away from it. It will even be more interesting to launch into our third study of this nature and ask the question, "Does it really make any difference in children's achievement if the teacher does behave differently during reading instruction?" Hopefully, the answers to these questions will guide future researchers in reading in planning their teacher's guides and instructional materials.

A Study of Attitudinal Changes in Mexican-American Parents Toward the Schools

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WE ARE LIVING in a period when our national attention is focused upon the needs of the minority groups within our society. Minority groups have always been a part of our nation, but our present awareness of the need to do something about their problems has sprung from the recent demands made by the minority peoples themselves.

Many theories are now being investigated in an effort to alleviate the impoverished circumstances which often place minority group members in the

lower class (and at a disadvantage) in relation to our society's dominant middle class.

Educators have come to realize that a major disadvantage for many minority group children is a lack of the environmental background with which most of our children enter the American school, which is traditionally a middle-class institution. They also recognize that a great number of minority group children come from homes which are economically, socially, and psychologically disadvantaged to the point that these children are unable to benefit from the education which the school offers them.

Experimental research has resulted in the accumulation of a body of evidence pointing to the fact that it is not necessarily true that disadvantaged children have less intellectual potential than their middle-class counterparts. Educational research studies are demonstrating that it is often environmental deprivation which prevents the lower-class, minority child from developing to his fullest potential.

The need for compensatory preschool education

Our knowledge of how to educate the deprived child is limited, but we do know that as educators we must make every effort to understand the child in a minority group and help him become a contributing member of our society. It is with this awareness of the need to exert direction and positive influence on the education of the disadvantaged child that various types of compensatory programs have been established for deprived, preschool-age children.

Intervention preschool classes are experimenting with providing the disadvantaged child with experiences which, for various reasons, have been denied him in his home. Emphasis is placed upon helping the child gain certain concepts and academic skills which are prerequisites to school

achievement. The preliminary results of these experimental preschool classes seem to indicate some positive benefits for the youngsters enrolled.

The importance of parental involvement

One group of professionals is concerned that the positive effects of any type of preschool intervention program may soon be negated unless the program involves both the child and his family. This concern is based upon the premise that the child's preschool experience fills only a small segment of his daily living and learning and that the majority of his learnings continue in the deprived environment of his home.

This group of experts feels that successful preschool education for the disadvantaged child must be found in a combined program which emphasizes not only education for the child, but also education for his parents. They theorize that a solution to the disadvantaged child's educational problem may be found in working with the parents, so that the parents, in the home, can reinforce the learnings from the school. They propose that parents need to see the reasons for changing their own behaviors and, further, that it is important that parent education begin while the child is still very young so that parents will have a better understanding of the child's total school experience.

In some preschool classes for disadvantaged children, a primary goal is to help the parent, principally the mother, to provide the necessary "ready for school" experiences in the home. The main objective is for the mother to be directly involved in the preschool experience, giving her the opportunity not only to see what is happening there, but also to understand what she can do at home. In some preschools this is accomplished by 1) bringing the parent into the classroom for the pur-

pose of observation and participation, 2) communicating with the parent in individual parent conferences and in group parent meetings, and 3) the teacher going into the home to assist the parents in their efforts to help their children acquire the skills necessary for academic achievement.

Purpose of the study

The purpose of this study with Mexican-American parents of children enrolled in preschool was to evaluate how effective one such program had been in helping parents develop positive attitudes toward the school and the curriculum. The study was conducted to measure changes, if any, in certain attitudes of a group of bilingual preschool parents whose mother language was Spanish.

The Spanish-speaking peoples are the second largest minority group in the United States. One very large concentration of this population resides in the east area of Los Angeles. It follows that this city's schools are experimenting with many different programs which may prove to be more effective in educating the Spanish-speaking child, who is affected not only by his bilingualism but also by the same disadvantages common to other minority group children: poverty, poor physical and mental health, segregation, poor housing. In terms of school success, the greatest problem for these children is the bilingual environment in their homes and ghetto community where use of both Spanish and English is usually poor in quality.

The major hypothesis of this study was that positive changes in certain parental attitudes would occur during the period of the child's enrollment in the preschool. (Enrollment was for one semester or for five months.) It was further hypothesized that more positive attitude changes would occur among those parents who were actively involved in the preschool program

than among parents who were not actively involved. Measurement was confined to parental attitudes in each of three areas: 1) the school and the preschool; 2) discipline; and 3) specifics of early childhood growth and development, including child-rearing practice.

Procedures

Data were collected on thirty-four parents of four-year-old children enrolled in a half day preschool program in three neighboring city schools where the residents were predominantly Mexican-American. The population studied consisted of twenty-eight mothers and six fathers. All but three parents were of Mexican origin; fifteen had been born in Mexico. Almost all of the parents were representative of low income, substandard housing, skilled or semiskilled occupation, limited education, and large families. Nearly all showed a strong tendency to cling to the Mexican culture. The total parent group was evenly divided in the predominant use of Spanish or English.

The basic pattern of the research was a comparison of the data from two sets of interviews. Each parent was invited by his child's teacher to participate in the study. A prepared questionnaire was individually administered to each parent by the investigator during the opening month of the preschool class (October 1966). The same procedure was followed during the last month (January 1967).

One-half of the interviews required the services of a translator. Interviews were held at the three schools in all but two instances. For those interviews the investigator went, upon invitation, into the homes. With the parents' permission, all but five interviews were taped in the hope of collecting a larger amount of accurate information. The parent was given as much time as he or she needed to respond to each question; thus, the length of interview var-

ied from one-half to a full hour or more.

The questionnaire

Revision and refinement of the interview questionnaire followed a pre-testing with three parents whose children had been in preschool during the previous school year, and with one non-Spanish-speaking parent in the current session. The questionnaire used contained three sections. The first section consisted of eight questions relating to home-school relationships which explored parental attitudes toward the school in general, and the preschool program in particular. The parents were asked to tell how they felt about attending parent meetings, home visits made by the preschool teacher, parent participation in the classroom, learnings they desired for their children, and the school activities performed by the child. The six questions in the second section dealt with the parental disciplinary behaviors as well as with attitudes toward disciplinary treatment of the child by school personnel. The third and largest part of the questionnaire was concerned with the child's home environment, including the child-rearing practices of the adults in the family. Questions were formulated to discover whether the home was making adequate provision for the child to receive 1) language experience for developing the basic skills of communication, 2) sensory and motor experiences for the development of perceptual discrimination and conceptual thinking, 3) experiences which promote optimum physical health and mental health (good self-concepts), 4) experiences in appropriate interpersonal relationships with adults and peers, and 5) experiences which promote appropriate dependence-independence patterns. Because language impoverishment is such a critical deficit for the disadvantaged, bilingual child, six of the sixteen ques-

tions in this part of the questionnaire were devoted to the home language experiences. These questions covered use of English and Spanish conversation at meals, attention given to the child's questions and statements, story reading, and television viewing.

Analysis of data

The data which consisted of the two sets of responses made by each of the thirty-four parents were, for the most part, categorized and quantified by means of a four-point rating scale. For example, the response to the question, "How do you feel about the things your child brings home that he or she has made at school?" was rated 1) very favorable, 2) favorable, 3) not very favorable, or 4) unfavorable.

For the five questions which could not be categorized in this manner, a set of appropriate categories was set up for each individual question. An example would be, "When you tell your child to do something, what do you do if he does not obey?" Categories were 1) Use physical punishment, 2) Scold or threaten, 3) Talk or reason with, 4) Isolate or deny privileges, and 5) Does not feel child is disobedient.

The data were transcribed from the tapes to charts. All transcribing was done solely by the investigator. Rating decisions were made primarily on the basis of response content. Consideration was also given to the vocabulary used in the response, to the respondent's voice inflections, and to the interviewer's personal impressions of the respondent. Vocabulary was frequently the basis for choice between categories.

For purposes of comparison, the total population was divided into two groups: Group 1, the Experimental Group, and Group 2, the Control Group. A parent was placed in Group 1 if he had participated in the preschool classroom and playyard on a regular basis of once a week or once every two weeks, and if he had also at-

tended the majority of the preschool parent meetings with the teacher and/or other school personnel. Twenty-one mothers and two fathers made up the Experimental Group.

Eleven parents, seven mothers and four fathers, who did not meet the criteria for Group 1, were placed in Group 2. It should be noted that seven of the parents in Group 2 were involved in the "home visits" area of the preschool program, and their responses at the follow-up interview would be influenced to the extent of their interactions with the teachers at the times of these visits. One mother and three fathers in Group 2 were never at home during the teacher's home visits, due to working hours.

Tables were established for the total responses to the two sets of interviews. The responses to all questions were statistically treated by the chi-square test. The tables were used to compare the responses made by the total parent group during the initial interview with the responses made during the follow-up interview, and to compare the two sets of responses for the Experimental Group with those of the Control Group. Level of significant difference was .05 or less for all comparisons made using the chi-square test. In addition, the data were summarized according to percentages of parental attitude changes in a positive or negative direction, or if no change occurred.

Findings

From our analysis of the data, the major hypothesis of the study was rejected. This hypothesis stated that positive changes in parental attitudes would occur during the period of the child's enrollment in preschool. Certain positive changes which consisted of verbalizations about the school and the preschool were found in parental responses. Response to questions about child-rearing practices and parental be-

havior in the home, however, tended to be negative.

Since the only positive changes found in the parents' attitudes were those toward some aspects of the school and the preschool, it may be well to look for possible reasons for these findings. The results indicated that the majority of the responses of the total parent population to the questions in Part 1 of the interview questionnaire, *School and Preschool*, at the time of the initial interview were more often positive than negative. This fact suggests a generally good feeling toward the school when the child first entered. Since the majority of the parent responses were still positive, or even more positive, at the time of the follow-up interview, the attempts made by the school to establish good relationships with the home seemed to be meeting with at least some degree of success. There was also a group tendency for the parent to change his first choice to the question of what he or she wanted the child to learn in the preschool from all other categories, including English, to the category entitled "The Preschool Curriculum." This tendency could be interpreted as a growing feeling of parental satisfaction with what was being done for their preschool-age children by the school.

At the initial interview, the responses to the questions dealing with attitudes toward child-rearing practices and discipline were generally more negative when compared with responses to questions concerned with feelings about the school and the preschool. This finding may well mean that the task of changing parental behaviors toward their children is much greater than can be accomplished in a few short months. This would seem to be particularly true in the very important areas of language and interpersonal relationships. The majority of parent responses for questions con-

cerned with the language experiences provided in the home fell into the "less positive" and the "negative" categories. This was also true of the responses to questions dealing with peer relationships, with the amount of independence permitted the child within the immediate neighborhood, and with parent attitudes regarding sex questions from the child.

Certain child-rearing practices in the home may have a detrimental effect on the child's success in school. Responses to the questions in this area would suggest the need for investigation into other ways to interest the parents in changing their present behaviors.

More extensive research is needed in this total question of parent involvement, not only to verify the findings of this initial investigation, but also to probe the whole question of parent education in the compensatory preschool programs which are rapidly multiplying throughout the country.

Recommendations

Recommendations based upon the results of this study would include the following:

1. That the teacher's home visits for the purpose of giving additional individual instruction be continued and even expanded for the Mexican-American families. The positive attitudes toward the teacher's home visits suggest that this is one way to not only build stronger home-school relationships, but also to demonstrate to the parents a real reason for making a change in some of their child-rearing behaviors.
2. That active involvement of the preschool parents in the total program be pursued for all parents. Those significant differences found between the Experimental Group parents and the Control Group parents indicated that those parents who were actively involved gained a better feeling about the child's attendance of the preschool class and more positive feelings about the things brought home which the child had accomplished at school. A tendency toward a greater value placed upon the preschool parent meetings by the experimental group parents than by the Control Group parents also lends support to a continued effort to involve the parents in the preschool program.

3. That the program of parent participation be expanded into the kindergarten and perhaps the primary grades. This recommendation is based upon the generally positive parent responses to questions about their feelings toward the school. Since some degree of success in building home-school relationships was indicated, it would be unfortunate to lose these beginnings to better understanding of the school by the parents.
4. That exploration be conducted by educators to gain the parents' interest in alternative ways of child-rearing practices and behavioral patterns in the home. Changes in certain home practices might better assist the child in his total growth and development in the school program.
5. That studies be initiated by educators into ways to preserve the positive behaviors of the Mexican-American parent; i.e., the warmth and affection given to the child, and the customary family unity, while at the same time trying to change certain of his behaviors.

Cultural Background Study in Relation to Reading Ability

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RECOMMENDATIONS OF THE Research Conference on Education and Cultural Deprivation held at the University of Chicago, June 8-12, 1964, motivated the writer and her colleagues to become more cognizant of the cultural background, in relation to reading abilities, of children in grades four through seven of rural central Georgia. Although cultural studies have been made in other sections of the country, educators in thirteen school systems responded that no known study had ever been made here. Representatives

of these systems agreed to cooperate with the researchers in the gathering of data. The study was also an objective of an original planning grant of a Title III proposal.

Objectives and hypothesis

The first objective of the investigation was to study the cultural background in relation to reading abilities of matched pairs of able and disabled readers of this rural central Georgia area. The second objective was to describe the extent and variety of experiences of children in these grades in this same geographical area.

The hypothesis of this study was that the able and disabled readers did not differ in their experiential backgrounds as related to their cultural environments.

Design and procedure

The cultural survey involved children and utilized personnel crossing present boundary lines of administrative units in twelve counties and one small urban school system in rural central Georgia.

An experiential or cultural instrument entitled "Experiences Index"—a questionnaire containing 134 items—was designed by the writer and her colleagues and received clearance from the U.S. Office of Education for its administration.

The personnel (in participating counties or systems) who were to administer the cultural survey instruments met together to learn how to explain the directions. The administrators were to read aloud the purpose of the instrument in order to solicit the cooperation of the students. Appreciation was expressed for the students' time and efforts. Honesty or freedom of expression was encouraged by not asking the students to sign their names. The instructor read orally all of the items in order not to penalize disabled readers.

The students were asked to place a check mark on the blank preceding the item to indicate a *yes* response. An empty blank indicated a *no* response. All instruments were administered the same week in May of 1967.

It was assumed that each instructor gave the directions equivalently. It was also assumed that each student did respond (either positively or negatively) to each item. It was further assumed that the students responded truthfully.

From the population (11,311 children in grades four through seven from schools located in rural central Georgia) participating in the educational survey used to determine the extent of reading disabilities, a total of 174 students, or eighty-seven matched pairs, were administered the "Experiences Index" questionnaire. The total number comprised thirty-four pairs of Negro students and fifty-three pairs of white students. No comparisons were made between races. These students had been matched on certain characteristics by data processed through a computer at the University of Georgia. Children whose IQ's were 100 (± 5 or -5) and who were at least two years disabled in reading were matched, as nearly as possible, with one or more students of the same county or system, race, sex, grade, and mental ability, but who were reading at or above the expected reading levels. A formula devised by Bond and Tinker (2), IQ times the number of years in school plus one, was used to identify expectancy levels.

Although every effort was made to avoid sampling biases and to control the administrations of the directions for the questionnaire, there were several restrictions which might have affected the value of the study, some of which are stated as follows:

1. The sample was limited to a small population.
2. The experiences were measured

by an instrument which had not been standardized nor validated.

3. This was the first time this measuring instrument had ever been used.
4. Staff members who devised the "Experiences Index" questionnaire have since recognized ways to improve the instrument.
5. Some variations in administering sessions might have affected the children's responses and thus have caused an administrator bias.

The statistical technique employed in the attempt to identify cultural causes of reading disability was the fourfold contingency table chi-square test, comparing able and disabled readers (3). Each item on the questionnaire was examined individually with the races treated separately. When entries in a fourfold table were small (less than five), Yates' correction for continuity was utilized.

The chi-square distribution provides a method of estimating the reliability of the difference between two sets of frequencies—one actual and one theoretical. The chi-square test is used for determining whether or not a given set of frequencies could be obtained by chance from a hypothetically determined set. It is important to know whether these proportions merely reflect the operations of chance, or whether their appearance probably results from a significant controlling factor.

The null hypothesis assumes that an observed estimate reflects the fluctuations of the chance variation. The null hypothesis would assert that there is no real difference between the actual and the theoretical. The chi-square test is employed in order to test the null hypothesis, and provides a method for comparing the observed frequencies with the theoretical frequencies that might be expected. In order to deter-

mine the significance of the chi-square obtained, it is necessary to refer to the chi square table. Values are given in levels of confidence. Thus, if a given chi-square is significant at the five percent level of confidence, such a wide divergence between expected and observed frequencies would probably result from sampling fluctuations in not more than five in a hundred cases by chance. If significant at the one percent level of confidence, the divergence would probably result from sampling fluctuations in only one in a hundred cases by chance. For this study the .05 level of confidence was used for rejecting the null hypothesis. Thus, the null hypothesis, that there was no real difference, would be refuted (1).

Findings of the study

A summary of the items where significant chi-squares occur is found in Table 1. At the .5 percent level of confidence, the following eleven items revealed significant differences between able and disabled readers of the Negro race:

1. In item A:6 more able than disabled readers have more than one car in the family.
2. In item C:6 more able than disabled readers like to read poetry.
3. In item D:4 more able than disabled readers have received money for working.
4. In item E:4 more able than disabled readers feel close to their friends.
5. In item F:6 more able than disabled readers have fathers who work.
6. In item F:7 more able than disabled readers have mothers who work away from home.
7. In item I:17 more able than disabled readers get a daily newspaper other than the local paper.
8. In item I:21 more able than disabled readers have a set of encyclopedias in the home.
9. In item J:1 more able than disabled readers have taken a trip on a bus other than a school bus.
10. In item K:7 more able than disabled readers have been to a county fair.
11. In item K:21 more able than disabled readers have ridden in an elevator.

At the one percent level of confi-

Table 1

Summary of Items Where Significant Chi-Squares Occur

Item	Relationship	
	Negro	White
A:5 Do you have only one car in the family?	—	A < D*
A:6 Do you have more than one car in the family?	A > D**	—
B:3 Do you have your own room?	—	A < D
C:6 Do you like to read poetry?	A > D	—
D:4 Do you receive money for working?	A > D	—
E:4 Do you feel close to your friends?	A > D	—
E:7 Have you parents who visit your classroom?	—	A > D
E:8 Do you have parents who attend P.T.A.?	—	A > D
F:6 Does your father work?	A > D	—
F:7 Does your mother work away from home?	A > D	—
G:2 Have you been hiking through the woods and hills?	A > D	—
G:12 Do you play a musical instrument?	A > D	—
I:9 Have you been to a music recital?	—	A > D
I:16 Do you get a local newspaper?	—	A > D
I:17 Do you get a daily newspaper other than your local paper?	A > D	A > D
I:21 Do you have a set of encyclopedias in your home?	A > D	—
J:1 Have you taken a trip on a bus? (other than a school bus)	A > D	—
J:2 Have you taken a trip on a train?	—	A > D
K:6 Have you been to more than one town to do shopping?	A > D	—
K:7 Have you been to a county fair?	A > D	—
K:11 Have you been in a building higher than eight stories?	—	A > D
K:21 Have you ridden in an elevator?	A > D	—

* "Yes" responses of able readers are less than "yes" responses of disabled readers.

** "Yes" responses of able readers are greater than "yes" responses of disabled readers.

dence, the following three items revealed significant differences between able and disabled readers of the Negro race:

1. In item G:2 more able than disabled readers have been hiking through the woods and hills.
2. In item G:12 more able than disabled readers play a musical instrument (piano or band instrument).
3. In item K:6 more able than disabled readers have been to more than one town to do shopping.

At the five percent level of confidence, the following seven items revealed significant differences between able and disabled readers of the white race:

1. In item A:5 more disabled than able readers have only one car in the family.
2. In item B:3 more disabled than able readers have their own room.
3. In item E:8 more able than disabled readers have parents who attended P.T.A. meetings.
4. In item I:9 more able than disabled readers have been to a music recital.
5. In item I:17 more able than disabled readers get a daily newspaper other than the local paper.
6. In item J:2 more able than disabled readers have taken a trip on a train.

7. In item K:11 more able than disabled readers have been in a building higher than eight stories.

At the one percent level of confidence, the following two items revealed significant differences between able and disabled readers of the white race:

1. In item E:7 more able than disabled readers have parents who visit their classrooms.
2. In item I:16 more able than disabled readers get a local newspaper.

It is interesting to note that item I:17 (Do you get a daily newspaper other than your local paper?) was significant at the 5 percent level of confidence for both races.

On the remaining items of the questionnaire no significant differences were found between the able and disabled readers.

The purpose of this study was to learn more about characteristic experiences of children of this rural central Georgia area and to use the acquired data to compare experiences of able and disabled readers.

Of the 134 items used on the "Expe-

riences Index" questionnaire, only twenty-two items as reported revealed significant differences. These data are not to be interpreted to mean that because a student had had a particular experience, he can immediately be classified as an able or disabled reader. For example, owning an encyclopedia in the home does not insure or denote that all the children in that home are able readers. Owning an encyclopedia, however, could reflect a positive attitude of the parents toward educational aspirations and an interest in providing readily available reference materials.

The responses of the items on which the groups differed should not be said to identify an able or disabled reader. An approach was used to identify some concrete experiences to see if these experiences of able and disabled readers differed. This approach (to examine responses) was used to reflect environmental and motivational situations that would establish an experiential background conducive to building readiness for reading. Reading is a complex accomplishment; therefore, caution must be used in drawing conclusions and making generalizations.

Were experiences of able readers less limited than those of disabled readers? According to this cultural survey of children in grades four through seven in this rural central Georgia area, Negro able readers have more than one car in the family. One immediately detects a socioeconomic factor.

The Negro able readers had been to more than one town to do shopping. They received a daily newspaper other than the local paper, and more had a set of encyclopedias in the home. More Negro able readers than disabled readers had been to a county fair and had taken a trip on a bus other than a school bus. More of this group could play some musical instrument and read poetry.

The data imply that the families of more Negro able readers have higher incomes. The data revealed that more students of this group had received money for working and had parents (both father and mother) who worked for earnings. There could be many reasons for these facts. The writer will not comment on these data. Further research is needed.

The data disclosed that newspapers and encyclopedias had been provided to make available materials for reading. These responses reflect a parental positive attitude toward learning and keeping informed on current affairs. They also denote a striving for middle class values.

Trips taken on a bus (other than a school bus) and trips taken to a county fair could provide a wealth of experiences for observation and conversation. These trips could provide an experiential background conducive to reading.

Liking to read poetry denotes an appreciation of rhythm and sounds of words. Enjoying poetry is a forward step in the area of creativity.

Playing a musical instrument requires intelligence, an ability to concentrate, and an esthetic quality. It is interesting to note that more Negro able readers could play some musical instrument.

Riding an elevator means that these Negro able readers had to have gone to a town (possibly to a hospital) or to a city (possibly Macon, Augusta, or Atlanta) where elevators are used. This response might display a willingness of parents to provide varied experiences.

Feeling close to friends is a successful social attribute. It enhances the self-concept of the child. A section of this report is devoted to an adjustment study of these same students.

Hiking in rural Georgia is equally accessible to all children. Since there was a significant difference between Negro able and disabled readers, the

writer will state that this experience could afford a background for appreciation of nature and science.

A characteristic of the members of the Negro race has been their rhythmic qualities in the music area—folk songs, spirituals, rhythm bands, and dances. Could this rhythmic quality be related to the reading of poetry for Negro able readers?

Based upon the evidence on Negro students presented in this study, the null hypothesis was accepted for the remaining items of the Experiences Index questionnaire.

Were experiences of white able readers less limited than those of white disabled readers? According to the cultural survey more able than disabled readers have parents who attend PTA meetings and who visit their classrooms. These responses denote that these parents have positive attitudes toward the school. Their obvious interest in meeting their children's teachers or in wanting to see the environment of the classroom shows a personal interest in their children's educational growth. These parents usually cooperate with the teacher and the total school program. They might serve on committees of the PTA or a regular school project.

More able than disabled readers have access to a daily newspaper as well as a local paper. The presence of newspapers reflects an interest in current happenings which require some reading to obtain this information. Seeing a parent read with pleasure or concern often arouses the curiosity of a child, motivating the youngster to want to learn to read. Sometimes the element of mimicry enters the scene.

More able than disabled readers have been to a music recital. These responses do not necessarily imply a higher income for these families. Music recitals in this area are free, are sometimes held during school hours, or sometimes held at night in the

spring season. These responses do indicate an interest by these parents in the school program and the extracurricular activities as being important to the child in his total growth.

More white able readers than white disabled readers had taken a trip on a train and had been in a building higher than eight stories. These students would have had to have gone to some city for the latter experience.

It is interesting to note that more disabled than able readers have only one car in the family.

It is surprising to note that more disabled than able readers have their own room. Could it have been that all students did not have the same perception of "own room"? Could it be that students participating in this survey who do have their own rooms either have poor study habits or have materialistic objects that compete with reading materials for attention? Could their own rooms be used for gang sessions, day-dreaming, TV viewing, or other activities other than reading or studying? The writer hesitates to draw any inferences from these responses.

Based on the responses of white students presented in this study, the null hypothesis was accepted for the remaining items of the Experiences Index questionnaire.

Procedure for second objective

The second objective of this study was to describe the extent and variety of experiences of children in grades four through seven in rural central Georgia. In order to do this, the instrument was administered to the majority of children (in grades four through seven) in three typical rural Georgia schools. In one school which, although integrated, is predominantly composed of white students, all of the students in these grades were given the questionnaires. All students enrolled in the other two schools were Negro. All students (in grades four through

seven) were used in one of these schools; the curriculum director drew randomly the remaining necessary students from the other school. Caution was used to avoid a conscious selection of particular individuals. From the total group, 504 protocols were selected to form an approximated sample representing the ratio of the races used in the comparative study of experiences of able and disabled readers.

Four administrators gave the questionnaires during May of 1967. The same directions, basic assumptions, and restrictions apply to this portion of the study as enumerated in the comparative study.

Findings concerning population sampling

A general summary of "yes" responses which totaled less than 25 percent of a group or more than 75 percent of a group was made. This general descriptive summary which follows does not imply that the same students always compose the 75 percent group or the 25 percent group.

It is interesting to note that more than 75 percent of these students had the following items: television sets, radios, records, record players, electricity, tools to use at home, games, books of their own, a place outdoors to play at home, toys, pets, and bicycles. More than 75 percent responded that they like to do the following: make their own pictures, build things with their hands, read, listen to music, take part in sports, go to school, pretend, and collect things. The same percentage of students reported that they received money for working, had regular duties at home, had some free time to play, and selected their own books. Most of the approximated sample receive money for working and save some of it. They have regular duties at home. Most of them attend church. Their responses reveal that they feel close to their friends and family. Both of their

parents are living and their fathers work. They can swim, have been to a park, have been fishing, and have been on a hike. They have had a party for their friends. They have read to someone and have read a book (other than a school book) recently. They have a dictionary at home. They have been in a school play. They have been to a movie and to a county fair. They have ridden in an elevator, eaten in a cafe, and visited relatives or shopped in towns other than the town nearest them. They have had a garden at home.

Less than 25 percent of the Negro children of the approximated sample have an inside bathroom. They have changed schools more than once. Their responses reveal that less than 25 percent of them attended kindergarten or a summer camp or have used a public library. They have not had their teeth, eyes, or ears checked in the last year. They do not receive magazines regularly nor do they have encyclopedias in their homes. They have not visited a museum nor attended musical recitals or concerts. They have not been to a zoo, a state fair, a circus, the mountains, or the ocean.

Less than 25 percent of the total approximated sample have changed schools more than once. These few have had dancing lessons. These have heard a symphony orchestra concert, been to an ice show, seen a ballet, heard an opera, and visited a planetarium. They have visited a world's fair, the national capital, or have been out of the United States.

Although no effort has been made to compare experiences of the two races, it is interesting to note that in twenty-three items, the extremely high or low percentage of one race affected the percentage for the total responses of both races.

Conclusion

In conclusion, it might be said that

items reflecting parental concern and acceptance of the child in his environment, parents' positive attitudes toward the school, possible opportunities for creativity, and socioeconomic factors are important in laying the foundation for establishing motivation for extending language, building reading readiness, and creating a desire to read.

Many items did not discriminate between the able and disabled readers, possibly because of higher standards of living, even in rural Georgia. It seems that the society in this area in which these children live is becoming more "homogenized," and, in general, most of the children are having similar experiences enumerated on the Experiences Index questionnaire.

Any use of generalizations and predictions from these data should be limited to a sampling or population similar to those used herein.

The writer would like to make the following statements in a summary conclusion:

1. The items used did not reflect great differences between experiences of able and disabled readers.
2. Wherever significant differences did occur, items reflecting positive attitudes of parents toward the school and the child's educational growth seemed to indicate experiential backgrounds conducive to establishing a readiness for reading.
3. Travel builds up language experiences. Those items implying travel could possibly denote parents' interest for giving their children attention and placing value on motivational factors.
4. Responses from the two races were never compared in this study.
5. More research is definitely needed in the area of experiential backgrounds as related to cultural environments of children.

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Reading Ability and Rank in High School Class

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PARENTS OF TODAY'S ELEMENTARY SCHOOL CHILDREN have many concerns about the education of their children. Probably the most insistent concern is related to reading instruction and the reading achievement attained by these children in the elementary school.

Parents of high school students also are concerned about education. Here, the insistence is on preparation for college, and especially on qualification for admission to college. Intense competition for available places in college exists in most high schools today. Indeed, parents of much younger children are beginning to exhibit concern about college entrance, as they consider the increasing numbers of high school graduates and envision even greater competition for admission to college.

Public school administrators, responsible for satisfying the demands or for quieting the fears of those concerned parents, must consider the relationship of these two chief areas of concern.

This study proposed to use information generally available about most pupils to determine whether any relationship exists between reading ability as measured by standardized achievement tests at the beginning of the high school program and qualifying for col-

lege admission on the basis of rank in class at graduation.

Atkinson (1) and Fleischer (2) agree that rank in class is the most important single criterion for selection of students for college. For many years we have equated reading ability with potential for success in academic subjects in secondary school. Homogeneous organization of classrooms, guidance in course selection, and pupil assignments for new high school students, are many times based on the pupil's reading ability as indicated by his scores on standardized achievement tests. Robinson (4) says that academic performance is the *sine qua non* for the validation of remedial courses. Yet, most of the evidence in support of these programs is empirical in nature. Fragmented studies, with conflicting results, have been made of individual subject matter areas and specific reading skills. Nowhere have we found any evidence for assuming a positive relationship between total high school achievement, as measured by rank in class at graduation, and indicated reading ability at entrance to high school.

Research design

A representative sample of 761 recent graduates of four year public high schools in Connecticut was found, utilizing factors of variation in size of school, expenditure per pupil, and geographic distribution. Information was tabulated for all graduates concerning size of school, expenditure classification, sex, actual rank and quartile rank in class, and reading test (or subtest) percentile.

Graduates were classified as low ability readers below the 40th percentile on the standardized achievement test and as high ability readers above the 70th percentile. These arbitrary limits were based on the findings that such levels represented approximately one full year difference in grade equivalent below and above the actual grade

placement at the time of testing, or where standard scores were indicated, approximated two and one half units of the standard error of measurement below and above the mean, indicating a significant difference from the mean at each level.

The data were then transferred to IBM punch cards and collated by machine on print-out sheets.

Chi-square values were calculated for distributions for the data in 4 x 3 tables for each school as well as for boys and for girls, for graduates of large schools and of small schools, and on the basis of expenditure per pupil. A coefficient of correlation was also calculated for the total sample of 761 graduates.

The null hypothesis was assumed that there is no relationship between reading ability and rank in class. From the observed frequencies of quartile rank in class for graduates in each of the reading ability groups, theoretical, or expected frequencies were calculated. The measure of the differences between observed frequencies and those expected on the basis of independence assumed by the null hypothesis was the chi-square value.

Findings

The chi-square value required to reject the null hypothesis, and thus establish a significant relationship between reading ability and rank in class at the .001 level of confidence, was 22.46.

The chi-square value for the entire sample of 761 graduates was 139.81, indicating a significant relationship.

The chi-square values for girls and for boys were 101.71 and 54.82 respectively, both significant at the .001 level.

Chi-square values for small schools were 39.24 and 58.86, and for the population of the combined small schools was 92.61. All were significant at the .001 level.

For the large school population,

chi-square values of 54.63 and 41.04 were found, with the value for the combined large schools at 68.22. All were significant at the .001 level.

Chi-square values of 81.95 and 122.46 were found for the high and low expenditure units, respectively, both significant at the .001 level.

Implications

While other factors influence final rank in class as noted by the range of values for chi-square obtained from various groupings of parts of the data, the evidence indicated that those who entered high school with higher than average reading ability tended to rank higher in the graduating class. Those who began high school as poor readers seldom achieved high rank at graduation.

It was noted that 50 percent of the graduates were included in the high ability group in reading ability, 31 percent were of average ability, and only 19 percent rated low in reading ability. The variation from the normal distribution was probably the result of a number of factors including the tendency of poorer readers to become dropouts as reported by Penty (3) in her study.

Forty percent of the high ability readers attained the top quartile in class rank and an additional 28 percent ranked in the top half of the class. Thus, two-thirds of the good readers ranked above the 50th percentile.

Only 19 percent of the graduates entered high school with low reading ability, yet 49 percent of those ranked in the lowest quartile in rank, with only 3 percent attaining the top quartile.

Nearly 78 percent of the graduates who ranked in the top quartile were high ability readers, although only half of the graduates were classified in that ability group. Only 2 percent of the students graduating in the top quartile in rank were poor readers on entering

high school. Poor readers constituted more than 38 percent of the lowest quartile rank in class, although they represented only 19 percent of the sample.

One of every three of the good readers in the sample fell into the lower half of the class in rank, and one in eight dropped to the lowest quarter. Despite the tendency of good readers to rank high in class at graduation, a considerable number of good readers fall off rather sharply. It must be noted, however, that the largest school in the sample reported 73 percent of its graduates as good readers, of whom 15 percent fell to the lowest quartile in rank. When the data from this school were eliminated, only one good reader in four fell into the lower half of the class, and only one in twelve to the bottom quartile.

The observation that this school still showed a significant relationship between reading ability and rank in class serves to emphasize the rejection of the null hypothesis. The difference in chi-square values for the total sample (139.81) and for the other three schools combined (115.84) was a minor one.

Sex differences

While the relationship between reading ability and rank in class was found to be significant for both sexes, it should be noted that there was a considerable difference between the chi-square values obtained for nearly equal members of each sex. Girls made up 49 percent of the total group studied, and the distribution of reading ability was the same for boys and girls, yet 61 percent of the group in the top percentile were girls.

One of every eight girls fell to the lowest quartile in rank, but one boy in three fell to that level, even though half the boys were high ability readers. Sixty percent of the boys who were poor readers finished in the lowest

quartile and only 15 percent attained the upper half of class ranking. Of the girls who were poor readers, one in four reached upper-half ranking, and one in three ranked in the lowest quartile.

Among the average readers, also, more than twice as large a percentage of boys fell into the lower quartile as did girls. More than half the average girl readers, and 85 percent of the good readers among girls, ranked in the upper half of the class. Only 40 percent of the average boy readers, and barely 50 percent of the good readers, reached that level.

Sex differences, therefore, would appear to be an important, though not necessarily controlling, factor in academic success in high school, when considered in relation to reading ability. More than half of the best readers were boys, yet only 40 percent of those in the upper-half of class rank were boys.

Size of school

There would appear, from the data, to be no particular influence on academic achievement based on size of school or on expenditures per pupil. In all instances a significant relationship between reading ability and rank in class was indicated at the .001 level of confidence, and no great disparities appeared in any of the distributions of pertinent data.

The data indicated that none of the factors associated with small schools affected the significant relationship between reading ability and rank in graduating class. Pupils in small schools, whether expenditures per pupil were high or low, showed the same relationship between reading ability and academic placement as did all the other pupils in the study. Such factors as narrow programs, or close pupil-teacher relationships, or small ability ranges, or high or low pupil-teacher ratios, often associated with

small schools, appeared not to influence the fact that better readers tend to rank higher in class.

More than 50 percent of the good readers in small schools attained the top quartile in rank. More than 50 percent of the poor readers in the same schools fell to the lowest quartile in rank. Two thirds of the average readers ranked in the middle quartiles, with the same slight tendency for more average readers to drop to the first quartile in rank than to rise to the top quartile.

In the large schools, where one might expect broader programs geared to larger numbers in the range of abilities, or special offerings, or relative loss of pupil identity, or more formalized organization, among other factors, the relationship between reading ability and rank in class apparently was not influenced by such advantages or disadvantages. The better readers still tended to rank higher than the poorer readers; more than twice as many good readers attained the top quartile than fell into the first quartile in rank; and more than 40 percent of the poor readers fell into the first quartile.

Expenditures per pupil

The factor of expenditure per pupil did not influence the relationship between reading ability and rank in class as was evidenced by the fact that each individual school demonstrated the same significant relationship, regardless of expenditure per pupil.

Good readers in the schools which spent more than the average expenditure per pupil tended to rank higher than poor readers in the same schools, and in the same proportions as did pupils in the low expenditure per pupil schools. Whereas 20 percent of all poor readers were able to attain the top half of the class in rank in the total sample, only 23 percent of the poor readers in high expenditure per pupil schools achieved this rank. Although

there may be some indication of some "quality" factor here, it is slight, and it is weighted by the skewed distributions of one standardized achievement test noted above.

Conclusions and recommendations

The data used in this study were those typically available in the public school records in Connecticut. In the responses to the initial inquiry by principals, and in the examination of records in schools not included in the study by reason of incompleteness or unavailability for these purposes, there was no indication that any other data exist which would more appropriately indicate the relationship between reading ability and academic success measured by rank in class at graduation.

Because reading ability at the beginning of the high school program has a significant relationship to academic success, every effort should be made to develop the elementary school reading instruction program to the fullest, so that every student may attain his high-potential in reading.

Boys and girls were almost equally represented in the graduating classes of the four schools included in the study, and the percentage of boys and girls classified as good, average, and poor readers was almost identical. Yet 61 percent of the students attaining the top quartile in rank were girls, and 74 percent of those in the lowest quartile in rank were boys. While there is a significant relationship between reading ability and rank in class for both sexes, other factors would appear to be involved in the somewhat better overall performance of girls over boys.

Neither size of school nor expenditure per pupil appeared to be of significance in the relationship of reading ability and rank in class. Apparently, reading ability at the start of the high school program is a factor in academic success which is not seriously affected by whatever advantages or disadvan-

tages may be involved with differences in size or in expenditure per pupil. Perhaps the factors which contribute to reading ability itself are involved in the response to such differences in size and expenditure per pupil.

Those students with average reading ability tend to rank in the middle quartiles in scholastic achievement. Approximately two-thirds of the average readers ranked between the 25th and 75th percentile in rank. A much smaller percentage, however, achieved the top quartile than fell into the lowest quartile. The numerical superiority of good readers undoubtedly forces the average readers below the top quartile in general. Nevertheless, the group of average readers appeared to be influenced by other factors rather more than by reading ability. This is especially true of the male students represented in the study. Forty percent of the average readers among males fell into the lowest rank quartile, whereas only 15 percent of the females did so. Apparently factors other than reading ability influence boys who are average readers. One question is what these factors are, and if perchance they may also be involved in the level of achievement attained in reading itself.

The empirical assumption that good readers achieve higher scholastic rankings than do poor readers would appear, as a result of these findings, to be well-founded. Further study is required, however, to determine the answers to questions raised by the findings of this study:

1. Can scholastic achievement be improved, in terms of rank in class, through reading instruction after the beginning of the high school program? If such instruction is available to all students, will the good readers continue to rank higher than the others, or will other factors then have more significance than reading ability?
2. What are the factors which influence girls to out-perform boys in

scholastic achievement when reading ability is relatively equal?

3. What are the characteristics of the students with average reading ability which apparently result in more underachievement than overachievement, scholastically in this group? How are these characteristics related to sex differentiations?

Comments and observations

As the investigator was engaged in this study, he observed the following matters which should cause some concern:

1. There appears to be no concerted effort among public school systems to determine reading ability levels for entering students. In general, transfer students had no reading scores entered on their records, even when they entered the freshman class at the start of the school year, as in the case of students entering from parochial elementary schools.

2. There appears to be no outstanding test of reading ability generally accepted as providing a usable measure of the reading skills important to high school readiness. In the twenty-six schools available for study, ten different standardized achievement tests were used, with no more than five schools using any one test.

3. Whatever reading programs are being conducted in the secondary schools, in general, would appear to be somewhat less than effectively organized. No evidences of the results of such programs appeared in any of the records examined.

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An Evaluation of the Written Composition of High School Students in Five College Discovery Centers in New York City

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IT HAS BEEN STATED THAT children from economically disadvantaged backgrounds come to school with many language disabilities already present. These children are not nonverbal; but their oral language patterns, according to Bernstein, (1) are restricted and define the limits of future learning. Bernstein finds that often not enough elaborate language is present for precise conceptualizing. Middle-class children, on the other hand, are considered to have developed elaborate communication codes early. They are assumed to be capable, because of this development of bridging the gap easily between home and school.

What relation does this ability have to the ability to communicate by means of the written symbol? While there seems to be a great deal of information on the achievement of disadvantaged populations in the language arts areas of speech, reading, or listening, there are few reports in the literature concerning their written expression. When there have been studies concerned with composition or grammar, the subjects have been those disadvantaged students considered to be illiterate in all communication areas. Fur-

thermore, even in schools where school populations showed great need for help in written work, the National Council of Teachers of English Task Force on Teaching English to the Disadvantaged found that "few schools had any sequential plan for the teaching of writing." Most school programs, the force discovered, relied on the correction of individual assignments but had no definite plan that attacked the *specific* writing problems. On the other hand, the teachers found that formal grammar was being taught in many schools (2).

Loban found in his research in Oakland, California schools that "subjects from the lower socioeconomic groups do not use language with as full a range of potential as do those from more favored groups." His study was concerned with oral language and he defines "full potential" as the use of such syntactical devices as coordination or subordination to express a complex idea or the use of an appositive to reinforce or to extend the listener's understanding of what is being communicated (3). He further states that the Negro children he studied were hampered by the use of a "social dialect." They needed, he concluded, help in such areas as use of verb-subject agreement in third person singular; auxiliary verbs; omitted words, word endings, and beginnings; noun forms; and double negatives. The proper use of the verb "to be" was considered the greatest problem.

Loban states also (3) that "people who live in lower socioeconomic disadvantaged groups use language primarily for immediate *concrete* situations." He also says that "they do not use language to examine the future" nor "to go back to reexamine the past to see what lessons might be learned." And Loban found that such persons use short, brief sentences or partial sentences and are "not in the habit of ex-

pressing subjective emotions and feelings."

Purpose of study

This report is the first of several dealing with the written composition of a group of 375 underprivileged high school sophomores in five high schools in New York City.

The aims of the first study were as follows:

1. To determine the level of performance in written composition of these high school students by comparing their performances with those of the normative population on the Myklebust Picture Story Language Test.
2. To compare the scores of each student on the three aspects of composition measured by the Myklebust Picture Story Language Test: Productivity, Syntax, and Abstract-Concrete Level.
3. To compare the level of performance of this group of students on the three aspects of composition measured by the Myklebust Picture Story Language Test with their performances on the reading comprehension section of the Stanford Achievement Test-High School Battery (Grades 9-12.)

Further studies are now in the process of 1) analyzing the relationships among the various aspects of the Myklebust test and other measures of aptitude and achievement and 2) ascertaining which themes such students would choose for composition-writing, given the Myklebust picture as a stimulus.*

A final aim of this study was to provide information for the development of both composition and literature units by English teachers in the City University-New York City Board

*Reported in an article by Ruth R. Adams of City College and Florence B. Freedman of Hunter College: *The Themes They Choose* (in press).

of Education College Discovery and Development Program based on the diagnostic results and the evaluation of themes chosen.

Description of population

The College Discovery and Development Program, of which the students tested were a part, is a joint project, inaugurated in 1965, of the New York City Board of Education and The University of New York. Its purpose, so far as its student clientele is concerned, is to identify economically disadvantaged children who have demonstrated academic potential rather than achievement and who, therefore, are under-achievers at ninth grade. The program seeks to raise their motivation for and expectation of college study, while improving their high school achievement and preparation for later college success. Its other purposes include a longitudinal study of economically disadvantaged youth with academic potential in order to improve methods of identification of such students and prognosis of their possible achievement on the college level and, ultimately, of modifying teaching patterns for such children.

Students are nominated by ninth grade counselors, community action programs, and social agencies. Nominations are reviewed by a panel of high school and college staff.

Those students selected (about 550 per year during the first two years) are enrolled in five college development centers, one in each borough of the City of New York. Special features of the program are small classes (15-20), double periods in basic subjects, college students as tutor-mentors, augmented guidance services (one counselor per hundred students), a weekly scholarship-stipend, and opportunities for cultural enrichment through trips, including visits to college campuses. College professors serve as consultants to the teachers, since the curriculum

follows the typical high school pattern but uses approaches, methods, and materials especially selected or adapted to these students to enable them to meet the objectives and standards of the regular academic course.

In the field of English, teachers and chairmen as well as college consultants found that most of these students read both standard and contemporary books which were relevant to their concerns, not just in similarity of setting but in larger elements of character and problems. Those whose reading had been below level improved markedly during the program. The area of greatest difficulty in the English curriculum for college discovery students proved to be in writing. The teachers, whose findings seemed to agree with Loban's, were concerned with matters of syntax and usage as well as with the content of their students' compositions.

The decision was made to diagnose the students' strengths and weaknesses in writing, to present each teacher with an analysis of the students' writing, to evaluate these students against national norms, and to use the findings as a basis for designing a curriculum in composition for the eleventh grade of this college discovery program.

The test administered was the Picture Story Language Test developed by Helmar R. Myklebust. The test measures three aspects of written language by means of a picture about which each student writes a story. The written sample of the individual student is judged on the basis of established norms in terms of 1) facility with the language or productivity; 2) correctness of language used, syntax; and 3) content or meaning, abstract-concrete level. As a result of this test, teachers are presented with an individual profile of each student, indicating the area of greatest weakness.

Although the author of the test feels that many factors, such as organic disability, may interfere with the normal

development of written language; he stated also that one factor may be cultural or educational deprivation and says that, "The Picture Story Language Test can be used to study the effects of cultural deprivation." Thus this test was administered to the college discovery tenth grade population described previously because it was felt by their teachers that, with these students, achievement in written language was substantially lower than achievement in reading skills and other areas of the language arts. Clues were sought by which teachers could find the areas of *individual* need in written language in order to bring improvement. The test was administered and scored by Ruth Adams and Florence B. Freedman. Lawrence Brody and his staff helped in planning the study and in writing this report.

Results

Test	Boys		Girls	
	Mean	Stanine	Mean	Stanine
Total Words Total	161.24	6	193.29	7
Sentence Word/Sentence	10.46	7	12.67	7
Syntax	16.12	6	16.49	6
Quotient	96.34	4	98.05	4
Abstract-Concrete	18.00	5	18.37	4
SAT-Reading	32.39	4	32.29	4

Summary

College Discovery and Development Prog students achieved Picture Story Language Test scores which were higher in productivity, lower on syntax-quotient, and approximately equivalent on the abstract-concrete dimension, as compared with the population upon which the Picture Story Language Test had been standardized. In addition, CDDP students showed considerable variation in their achievement scores on the three major aspects of the Picture Story Language Test although it had been anticipated that such variation would not occur. Simi-

larly, CDDP students achieved substantially higher scores on PSLT than on the Stanford English Reading subtest.

It should be noted that the experimental population consisted of urban high school students who had been selected for participation in the CDDP because they were economically impoverished, had high academic potential, but had demonstrated academic performance very substantially below their potential prior to their enrollment in this program. It had been the opinion of English teachers that CDDP students were seriously handicapped in English composition. Yet, on the Picture Story Language Test, CDDP students achieved substantially higher *productivity* scores and *substantially equivalent abstract-concrete* scores. These findings would seem to challenge this previously expressed general opinion of English teachers; only in the syntax area did the experimental population achieve lower than standard population scores.

It is difficult to draw firm conclusions from this data regarding the appropriateness or inappropriateness of the previously mentioned teacher assessments for several reasons. First, the appropriateness of the PSLT norms for the CDDP population cannot be evaluated. The PSLT norms (for the age groups tested in this study) are based upon 125 cases. This population was selected to include a representative sample of high school youth, including urban and suburban, typical and disadvantaged youth. The experimental population in this study, however, consisted entirely of urban, impoverished, and predominantly minority-group students. Of these 375 students approximately 47 percent were Negro; 25 percent, Puerto Rican; and 3 percent, Oriental. It is not clear whether the normative population can be assumed to be adequately representative to justify conclusions regarding the relative achievement of this experimental population and a generalized high school

population. It would seem probable that the standardization population includes far less than the 75 percent minority group subpopulation of CDDP. In addition, all of the CDDP population are impoverished while only some unknown fraction of the normative population can be assumed to have been economically poor.

It should also be noted that this experimental population is exactly three times as large as the total sample of comparable age in the normative population. If the present investigators could positively resolve these questions concerning the representativeness of the normative sample, they would have to conclude that, in general, the CDDP population is somewhat above the general population in composition skills as measured by the Picture Story Language Test. Since this question remains unresolved, it is recommended that alternative means of evaluating the level of English composition skills of CDDP students be considered. One such means, a study of the themes chosen by these students in writing for the Picture Story Language Test, has been completed by Adams and Freedman.

The syntax quotient scores of this experimental population were one stanine below standard, with the mean for the total experimental group at 97.09 (as compared with a standard total mean of 97.9). McGrady (5), referring to the syntax quotient, stated:

However, its essence is that the subject's sample is compared with an ideal model of what should have been written for his intent. . . . The scoring sheet for this test allows the clinician . . . to pinpoint specific patterns of grammatical and morphological error.

If the representativeness of the standard population can be assumed, this condition implies a potentially fruitful means of further examining the English composition needs of the CDDP population. Such ". . . pinpointing of specific patterns of grammatical and morphological errors" would seem to

provide a most valuable means for teachers to greatly improve their students' success in another communication. Investigations of this promising lead and its underlying questions are being pursued:

Alternative routes toward increased student success are also being followed. The themes written by the CDDP students and their scoring by PSLT techniques have been photocopied and used in conferences with the high school English teachers by the College Discovery and Development Program's curriculum consultants. This material has already been found to be helpful in several ways pending resolution of the question of representativeness of the PSLT standards. Whether a student's score was above or below "norms" has been accepted by teachers as of less importance than the identifying of his specific needs and devising ways of improving his competence to its maximum potential. This is a most valuable pattern of action; it averts the focusing of teachers' attention primarily upon those "below grade." Each student's need is approached whether above or below norm, at specifying points of need as identified in his own work sample in the process of PSLT scoring.

Similarly, although the median stanine score of CDDP students was slightly below standard on the abstract-concrete dimension, these statistics are less useful to the teachers than is the analysis of the kinds and levels of abstraction, generalization, or concrete specificity of language each student used in his PSLT work sample. Here again, powerful tools for the teacher's use can be provided; this is a second means by which this testing program is being used by the curriculum consultants in CDDP.

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The Effect of Informal Reading Inventory on a High School Reading Program

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READING SPECIALISTS ASSUME AND TEACH that the goals of instruction in reading and English are so similar that every English teacher is, perforce, a reading teacher (8). While admitting that most English teachers lack "reading" preparation (4), they assume that with added training in reading techniques, a good English teacher will be able to become a good reading teacher and, furth more, will want to (5). They assume that the diagnostic point of view (whereby, given standardized test scores to use as one index to instructional levels, the reading performances of individual pupils are assessed, diagnosed, discussed with students, and remediated) is practicable for the content-oriented teacher who must meet over 100 students a day, and that, therefore, an informal reading inventory is an instrument useful enough to provide information upon which to base teaching plans.

There is general agreement among such authorities as Austin and Hueb- (1), Betts (2), Botel (3), and

McKee (7), that informal reading tests are useful in evaluating pupil performance; some additional suggestions made by Kender (6) were supported by our experiences in this study. Kender pointed out that passages to be used for informal test items should be chosen from the reading materials in which the students are going to be instructed and that persons who administer informal inventories need special training.

Construction and use of an informal reading inventory as the focus of in-service training in reading improvement in a large comprehensive high school, brought to light valuable information about these assumptions.

Goals

We were concerned especially with teachers of freshman English who needed special training in reading instruction to meet the needs of 1,200 incoming freshmen, over a third of whom were socially disadvantaged.

We said that in-service training devoted to helping freshman English teachers learn to construct and administer an informal reading inventory would have a positive effect on the entire reading program, since it would make teachers, reading lab, and students, more effective and efficient.

Methods and procedures

Because we believed that improved diagnosis of strengths and weaknesses was the key to improving reading skills, we reorganized the reading program to reflect this emphasis. Four phases of the reading program were viewed as interlocking: in-service training of English teachers, informal classroom diagnosis of reading skills, adaptation of reading laboratory lessons to accommodate group needs, and provision for special skill resources and reading specialist help for classroom follow up. Teachers participated in six in-service training sessions fo-

cused on construction and administration of informal reading inventories. This information was used to compile individual reading profiles. Then, a composite class profile became the framework for reading laboratory lessons and subsequent reinforcement in the classroom.

Fourteen teachers of freshman English classes met after school for six two-hour in-service training sessions, where they were shown how to administer informal reading tests, how to use this information to construct individual and class reading profiles, and how to evaluate the profiles and use them to guide their reading instruction.

Since our students' levels ranged from retardation to acceleration, we needed an informal reading inventory that was broad in scope. Basing our informal reading inventory on a recognized hierarchy of reading skills allowed for this scope and for comparison with standardized test results.

The first in-service session was devoted to an analysis of students' standardized test scores and discussion of the purposes of informal reading inventories. Techniques of recording oral reading and methods of interpreting errors were introduced at the second session, and time was allowed for practicing different techniques. The main sequence of learning word analysis skills was the main topic of the third session, and a brief word attack test, to be used by the teachers in their classrooms, was introduced.

The teachers were given instruction for compiling word lists from the textbooks assigned to their respective classes, and these lists were used at the following session to make up informal tests of vocabulary in and out of context. The fifth session was spent in a group experience constructing different types of comprehension questions from a single article. After this experience, the teachers were expected to up questions in the areas of main

idea, details, inference, and interpretation from their own textbooks.

Reading profiles were interpreted at the last in-service session, and suggestions were made for basing classroom reading instruction on individual needs.

Teachers of freshman English classes in the slow, average, and fast tracks were then scheduled to bring their classes into the developmental reading laboratory for four one-week sessions throughout the school year.

The class reading profiles were used by the reading lab specialist and the English teacher to plan the week's lab instruction around the needs of the individuals in each class. The results indicated that instruction was needed in three major areas: vocabulary, comprehension, and study skills. In this study, vocabulary data are analyzed. Follow-up material was available for further reinforcement after lab week.

Measuring procedures

The following procedures were used to gather data:

1. A tabulation of 14 teachers' evaluations of workshop procedures
2. A tabulation of reading profiles from nine classes (three fast, three slow, three average)
3. A tabulation of 270 students' evaluation of lab instruction
4. A tabulation of 270 students' evaluations of own needs from a check sheet of reading skills
5. Comparisons of responses made by teachers and students to survey questionnaires
6. Tabulation of free response evaluations
7. Comparison of free response evaluations with conference discussions

Results

A summary of evaluations made by fourteen teachers of the in-service workshop in reading follows:

Table 1

	Yes	No	Adequate	Not Desirable	No. Response
<i>Value</i>					
Students	43	21	-	0	21
Teachers	64	14	-	0	22
<i>Use</i>					
<i>Reading Laboratory</i>					
Orient Students	64	22	-	0	14
Training	57	36	-	0	7
Follow Up					
Materials	64	14	-	0	22
Demonstrations	50	21	-	0	29
Conferences	20	21	-	0	50
<i>Classroom</i>					
Daily Class Work	50	29	-	0	21
Classroom Guidance	29	57	-	0	14
Classroom Follow Up					
Techniques	64	7	-	0	29
Materials	36	28	-	0	36
Organization	28	36	-	0	36
<i>Too Much Time Spent?</i>					
Workshop	43	7	36	0	14
Constructing IRI	64	0	22	0	14
Administering IRI	50	0	29	0	21
Evaluating IRI	50	27	0	7	14

Analysis of the data revealed the following:

1. In-service training focused on the construction of informal reading inventories is valuable in changing teacher behavior. Sixty-four percent of the teachers replying to *Evaluation of Workshop Procedures* indicated that constructing an informal reading inventory had added to their knowledge of reading. Evidence of this effect was given in answers to the question regarding specific reading improvements. Sixty-four percent of the teachers said

they used new techniques, 36 percent used new materials, and 28 percent used new classroom organization. Sixty-four percent said they oriented students to work in the reading laboratory, and 57 percent said that informal reading inventories were helpful in teaming with reading specialists in the reading laboratory. Only 50 percent, however, were able to integrate the administration of informal reading inventories into daily classroom work at the beginning of the year.

Even though the majority of the

Table 2

Teacher	Percent Phonetic Analysis			Percent Structural Analysis			Percent Dictionary			Percent Context		Percent Agreement	
	T	S	SE	T	S	SE	T	S	SE	S	SE		
A	84	19	50	73	27	86	100	3	14	81	35	45	17
B	50	27	33	65	23	62	26	23	47	80	30	43	18
C	39	52	50	91	43	64	61	13	50	96	30	40	25
D	48	30	40	83	87	70	35	52	20	91	21	40	30
E	60	14	62	61	61	87	18	7	46	43	14	46	18
F	60	42	34	70	57	39	4	4	21	43	21	47	20
G	25	16	43	75	75	52	20	16	78	20	8	56	27
H	22	15	50	100	74	69	33	8	77	40	11	58	29
I	14	5	31	65	69	37	0	4	81	17	22	56	25

Key: T = Teacher made reading profiles
 S = Student inventory of reading needs
 SE = Student evaluation of lab instruction

teachers felt that the inventory was valuable and useful, 64 percent felt too much time was spent constructing it, and 50 percent felt that they spent too much time administering and evaluating it. Only 43 percent, however, felt that they spent too much time in the workshop itself.

2. Teachers who have improved diagnostic techniques reveal need for follow-up training in grouping and individualized instruction.

This was shown by the fact that only 29 percent said they were able to use reading profiles to guide instruction in their classrooms.

Analysis revealed the following:

1. Students exposed to individual diagnostic inventories recognized their strengths and weaknesses, recognized instruction designed to help them, and were motivated to learn.

After a discussion of their reading progress with their classroom teacher and an introductory lesson in the reading lab, students were asked to show what they felt to be their strengths and weaknesses on a student inventory form. There was agreement between teacher's estimate of student's reading need and students' estimate of their needs as expressed in the student inventory 24 percent of the time.

For the purposes of this study, analysis was made of instruction given in vocabulary development.

When students were given instruction and results analysed regardless of track or need, they recognized four approaches to vocabulary improvement as follows:

In all tracks, a range of from 31 percent to 62 percent of the students reported instruction given in phonetic analysis. The range reporting instruction on structural analysis was greater, and extended from 39 percent to 87 percent. Even greater was the range reporting instruction in dictionary skills, 14 percent to 81 percent. The range reporting receiving instruction

in the use of context clues was narrowest: 40 percent to 56 percent.

Although they did not always agree with teachers' estimate of their reading needs, most of the time students recognized the purpose of specific instruction.

2. The needs of tracks are different, and should shape both informal reading inventories and instruction.

Teacher estimate and student estimate showed variation according to track, while lab emphasis showed less variation. While 77 percent to 81 percent of the students in the fast tracks reported that they received instruction in dictionary skills, 20 percent to 46 percent in the average, and 14 percent to 50 percent in the slow reported receiving this instruction. Teachers recognized different needs according to tracks. For example, in the use of context clues, the ranges were 80 percent to 96 percent for slow, 43 percent to 91 percent for average, and 17 percent to 40 percent for fast.

3. There was a small but positive effect on reading lab procedures. 57 percent of the teachers said they use class profiles as the basis for teaming with the lab specialists. 36 percent said they were using new materials supplied by the reading lab.

Table 3

Effectiveness of the IRI	
Not Useful or Negative	Potentially Useful or Positive
x	x
x	x
x	x
x	
x	

Nine of the fourteen teachers included in our study chose to make free responses in addition to the specific questions on the teacher evaluation sheet. Their responses may be roughly grouped into those concerning the effectiveness of the informal reading inventory and those concerning the ef-

Table 4

Effectiveness of Reading Lab	
Not Useful or Negative	Potentially Useful or Positive
x	x
x	x
x	x
	x
	x
	x

effectiveness of the instruction given in the reading laboratory.

All five of the teachers who commented that the informal learning inventory was not useful gave lack of time to administer, score, and evaluate it as their main reason. The teachers who commented that the informal learning inventory was potentially useful qualified their comments with suggestions about adjusting the inventory items to suit the needs of different tracks.

Three teachers commented that the reading lab instruction was not noticeably cued to the weaknesses shown in the class profile and felt that they could have handled the materials used in their own classrooms just as well. Six teachers suggested that the reading lab offerings could be adapted to fit special students' needs. This pointed up the range of teacher background and experience which must be assessed when planning any in-service program.

Written comments were supported by teachers' suggestions given during individual conferences. In addition, teachers suggested that time for pre-planning was one of the most important factors leading to good instruction and should be included before each week in the reading lab. This supports our conclusion that the next step in in-service training must emphasize organizational procedures of grouping and individualization.

Summary and implications

Both teachers and students saw positive benefits resulting from construc-

tion and use of an informal reading inventory.

Teachers improved their knowledge on the nature of reading processes and the meaning of reading difficulties, but some thought the method was too time consuming, not specific enough to differentiate needs track to track, not easy to fit into daily work, not enough by itself for optimum focusing of instruction in the reading lab or for optimum follow up in classrooms. Some teachers either believe they were already teaching reading, or that they were English specialists who should leave reading to other specialists. Those teachers who saw the need for "remediation" were enthusiastic.

Results pointed up the fact that informal reading inventories must be carefully tailored to meet the needs of both teachers and students. In a school where students are tracked, one informal reading inventory will not do for all situations. There should be as much change in reading areas assessed from track to track as there is in objectives differentiated from track to track. The teacher should continue to construct parts of the inventory, but guidance must be available as to which sections are most valuable to administer and to interpret for her level of student.

Constructing an informal reading inventory turned out to be an alerting device for teachers, but pointed up the fact that it requires extensive knowledge of instructional techniques to become useful. This defines the next phase of in-service training.

These attitudes lead us to believe that in a large high school, the first thrust of in-service might well be to help English teachers define the responsibilities they must assume in reading. Suggestions for use of the reading lab for remediation, or as a reading resource center for different tracks and various schedules during the school year reflected the differences in viewpoint which English teachers brought

to their role in reading. Informal reading inventories may be most valued by teachers where they do not already have the benefit of administrative provisions to improve reading and must depend mostly on themselves and their own knowledge. Where students are tested for placement, tracked, and given differentiated English materials for tracks, or where teachers do have a number of reading resources, specialists as resource people, a reading clinic, a reading lab, and a reading center, in-service must begin with frank exchange of opinions about roles in reading.

Even in large high schools, although in-service training in the use of informal reading inventory reveals many problems, reading specialists cannot stop trying to promote the use of diagnostic procedures. Only in this way will we fully arrive at our goals of "every teacher a reading teacher," and every student a receiver of individual instruction.

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Variables Predictive of Success in Learning to Read

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THE INTENTION of this report is to communicate as fully as possible the findings which may be of use to schools hoping to teach adult illiterates to read. As few technical terms as possible will be used here in order to accomplish this purpose. A full technical report, however, is being prepared and will be available soon.

In this study a sample population of some 200 adult city-core-illiterates who were reading at less than third grade level and had acceptable near-point vision were tested with an Experience Inventory, The Wechsler Adult Intelligence Scale, The Leiter Adult Intelligence Scale, and the Davis-Eells Games. Two questions of major importance were answered by that portion in the study dealing with the prediction of reading achievement:

1. Are there significant correlations between the gain in reading achievement and a) the various subtests of the Wechsler Adult Intelligence Scale, b) the subtests of the Leiter Adult Intelligence Scale, c) the scores obtained from the Davis-Eells Games, and d) the factors on the Experience Inventory?
2. Is there a cluster of Wechsler Adult Intelligence Scale, Leiter Adult Intelligence Scale, Davis-Eells Games, and Experience Inventory factors which will predict a gain in achievement of illiterate city-core adults in learning to read.

The predictive variables which were obtained in the first question are presently being subjected to a regression analysis to produce the results hoped for in the second question.

The items on the Experience Inventory were designed to 1) identify the subject; 2) sample the possessions he had, such as telephone, television, radio, newspapers, and magazines; 3) sample the subject's general functional knowledge as related to his possessions; 4) sample certain operational knowledge concerning time, direction, orientation, and ability to gain meaning from maps and charts; and 5) sample his reading-associated interests.

Additional information about common knowledge and performance factors was gained from the administration of the Wechsler and Leiter individual intelligence measures and the Davis-Eells Games. Because of their own peculiar value, these measures were chosen to sample the behavior of the subjects. The WAIS, for example, seemed a likely means of sampling knowledge and performance factors which would be deemed to be of importance for academic learning for adult illiterates.

The second measure used was the Leiter Adult Intelligence Scale. It was included because it had originally been constructed by Leiter to use with individuals who were somewhat handicapped or culturally deprived. It seemed to incorporate non-language materials better and more comprehensively. The third measure, the Davis-Eells Games, was chosen because it was a group intelligence test appearing in cartoon form and requiring no reading. The test was designed to cover real-life problems, and it seems to indicate social learning maturity. Since it was designed to overcome socioeconomic differences in the test situation and to measure behavior in problem situations, it appeared to hold promise as a measure of pertinent knowledge in performance factors.

From these four measures, 49 original variables were correlated with reading success as measured by pre- and post-test results on the Stanford

Achievement Test, Reading Section.

The two-column variables were treated with a Pearson product-moment correlation and the single-column variables were treated with a simple chi-square.

Teacher ratings of how well the students had done seemed to be more accurate than many of the standardized test results. This outcome may be due to the error ratings. If one gives pre- and post-tests, each of the tests has an error rating. This fact means that in this study the standardized test had the disadvantage of having two error ratings while the teacher rating of the pupils had only one error rating because it was only done at one time, at the end of the school year. Howard Kight, at the State University of New York at Buffalo, mentions that Lord presently has a method whereby one may hope to statistically control for the larger error rating which a standardized test labors under. However, the writer's group has not as yet been able to make use of this newer method.

The teacher ratings agreed with the standardized test ratings in almost all areas. There was, however, significant difference between the two. Teacher ratings almost universally correlated more highly with the various predictive variables than did the standardized test results.

It appeared that the gains of the students at the very bottom of the distribution were not represented by the standardized test scores and that students may have made significant gains, but these were in the area of readiness for reading instruction, rather than in the area of actual academic gain in reading ability, and, therefore, were not represented by the standardized reading test scores. It is quite likely that the classroom teachers were able to identify those persons who were making such gains whereas the standardized reading tests were not able to do so.

In the continuous variables computed by Pearson product-moment correlations, which comprised most of the results from the Wechsler, Leiter, and Davis-Eells tests, the variables which were most predictive of success in learning to read were the WAIS Picture Arrangement, the WAIS Digit Span, the WAIS Information subtest, and the WAIS Digit Symbol. The Picture Arrangement subtest of the Wechsler Adult Intelligence Scale requires the subject to arrange cartoon cutout forms so they will tell a logical story. The test requires the ability to note sequence and to develop a story line.

The WAIS Information subtest taps what people have been able to gain from their environment and culture. It would seem to indicate the perceptiveness of the individual to his surroundings.

The WAIS Digit Span subtest requires the individual to be able to repeat digits after the examiner and necessitates the ability to apply rote memory on a very short-term basis.

The last of these four is the WAIS Digit Symbol test. In this test the subject is shown the "code" in which there is a number in the upper part of a series of boxes and a symbol or mark in the lower part of each of these boxes. Each number has a different mark. Subjects are then shown the test blank in which there are the numbers but no marks in the squares beneath. The subject is directed to put the appropriate mark below each of the numbers. It requires the ability of the subject to understand the task, to locate the appropriate symbol, and to be able to have sufficiently fine muscle coordination to be able to print the symbol below the appropriate number.

It is interesting to note that these four predictors of learning success on the part of adult illiterates correlated more highly than older tests, such as the WAIS Block Design, WAIS Vocabulary, WAIS Arithmetic, Davis-Eells

Analogies, or even the full-scale scores of the Leiter or the Davis-Eells.

In the categorical variables in which a chi-square was used to compute the correlations, the most valuable results seemed to derive from differentiating between those who succeeded in learning to read and those who did not in terms of their 1) knowledge of the number of months and the number of seasons in the year, 2) ability to discern right and left, 3) knowledge of the speed at which a record player turns, 4) possession of a radio, 5) previous educational level, and 6) a series of preferred book titles largely of a scientific nature.

Again it might be presumed that the knowledge of the number of months in the year, the number of seasons in the year, knowledge of right and left, and the speed at which a record player turns might be indications of how perceptive a person is of his environment or at least how well he may learn from those things which are in his environment.

The possession of a radio is a bit more difficult to explain. Whether the subject had a television set in his house had little significance as to whether he was a good prospect for reading instruction. The possession of a radio, however, seemed to be more indicative of good potential for learning. For some reason, possession of a radio indicates that a person is a better prospect for learning to read.

The preferences of titles would seem to give higher positive correlations in some cases than the items just mentioned, but many times the items are less useful than would appear because of the statistical distribution within the cells for the chi-square treatment. There does appear, however, to be a series of book preferences which bear some relatively strong relationship to the ability to learn to read.

The hope now is to be able to com-

bine these variables into a somewhat meaningful formula for the prediction of learning success. The next and obvious step would be the production of an instrument which would be useful in

determining the speed with which an adult might learn to read—hopefully, this will be the next task for the Reading Research Center at the State University of New York at Buffalo.

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OUTSTANDING DISSERTATIONS

Efficacy of Selected Stimulus Modalities in Acquisition and Retention of Sex Typed Textual Responses of Kindergarten Children

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University of Manitoba

THIS STUDY WAS DESIGNED to investigate the differential effects in rate of acquisition and retention of textual responses as a result of presentation of discriminating stimuli involving varying sensory modalities—auditory and auditory-visual at the kindergarten level. Along with the hypothesis that a summation of a pictorial and textual stimulus would result in shared and, thus, in reduced-stimulus control, it was hypothesized that an interest-loading inherent in the word stimulus would aid in achieving heightened attention to the stimulus and more efficient learning and retention.

Definition of terms

Throughout the study, terms crucial to the reader's understanding are employed. Several of these terms are used so frequently that a brief explanation at this point seems desirable.

Textual operant. Since the term "reading" generally refers to a multiplicity of processes, the narrower term, "textual operant" or "textual behavior," is used in most instances in this study. A textual operant is a vocal response brought under the control of a nonauditory verbal stimulus (Skinner, 1957) or, somewhat more generally stated, a speech response brought under the control of appropriate stimulation (Staats and Staats, 1963). The stimulus involved in this study is the printed word.

Colorful content words. For purposes of this study, colorful content

words are designated as words capable of evoking a mental image and, as such, pictorially representable. All words used in the study are nouns.

Design of the study and procedures

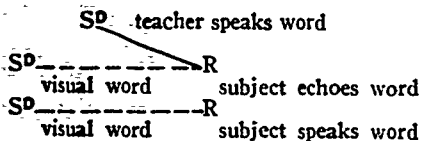
Selection of texts for the study. A sample of University of Minnesota graduate students and faculty was selected to respond to 264 colorful content words from the Murphy Word List (1957) to establish the basis for a boy-girl interest dichotomy. The twenty-one words of highest frequency for each sex were illustrated and presented to the total first grade population (437) of the Fort Garry Schools for further sex-type validation. From the ten words with the highest response differential for each sex, four words were matched for word length, configurational elements, compound parts, and intra-list confusability, to be used for the criterion word cards.

Sample. A random sample of 240 kindergarten children from the Fort Garry Schools was drawn from a sampling frame stratified on the basis of sex and ability level. These subjects constituted the treatment groups for the auditory-visual boy-word, auditory-visual girl-word, auditory boy-word, and auditory girl-word treatments. The criterion for ability stratification was scores achieved on the Harris-Goodenough Drawing Test (1963).

Description of treatments. Four sets of criterion-word cards were pre-

pared on 3½" x 11" strips of heavy paper. The two sets used for the auditory presentation had only the criterion word on the card. The two sets to be used for the auditory-visual presentation had the word on the card plus an accompanying illustration of the word. The criterion-word cards were laminated to ensure that the subject would not attend to extraneous stimuli and irrelevant cues, such as finger marks, to achieve mastery of the criterion.

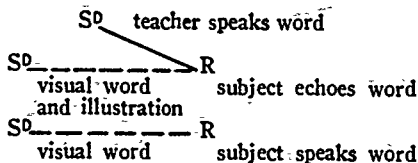
Auditory treatment. The auditory treatment was based on the simplest model for training a textual response which, according to Staaats (1963), involves presenting the written verbal stimulus, saying the word aloud; and having the subject emit a response that matches the sound—an echoic response. A graphic representation of the model follows:



The four criterion word cards were presented in randomized order. Approximately three seconds were allowed for each word exposure and three seconds, between presentations. Each learning cycle (i.e., presentation of complete set of four cards) was followed by a test cycle to determine the number of words the subject had learned to discriminate. Learning and test cycles were alternated until the subject responded acceptably on two successive test trials to each word up to a maximum of fifteen complete cycles. Correct and incorrect responses were recorded on each trial. Average number of trials to achieve mastery was designated as the acquisition score.

Auditory-visual treatment. The auditory-visual model approximates the auditory model in every respect except

for an accompanying illustration with each word presentation. A graphic representation of the model appears below:



Testing and scoring procedures were identical to the auditory treatment.

Retention tests. A related part of the study involved a test for retention of the responses acquired, twenty-four hours after the learning trials. The words presented in the learning-test cycle were presented only once in the retention test. The number of words retained was designated as the retention score.

Methods of analysis

Preliminary to the main analysis, mean differences in treatment effect for various subgroups were examined to determine possible trends in direction of mean differences without regard to significance level.

The main analysis was concerned with comparisons of mean scores between various treatment groups. Since specific questions related to the acquisition measures were stated in the form of hypotheses before the analysis was carried out, it was decided to run a series of orthogonal or independent comparisons based on the hypotheses. The dependent variables used were a) number of words learned and b) acquisition score based on the mean number of trials required to reach the criterion. Orthogonal comparisons were also run using the retention measure as the dependent variable.

Since the orthogonal comparisons for both acquisition and retention measures were run within sex levels, the error variance term used for the comparison was based on scores within sex rather than across both sexes.

To determine whether a relationship exists between retention and treatment methods independent of learning scores, two three-way analyses of covariance, within sex, were run on the retention scores. The covariate used was number of words learned. Further, one-way analyses of covariance

were run on retention using interest-loading as the main effect. The covariates were number of words learned and acquisition score.

Analysis of the data. Tables 1, 2, and 3 summarize comparative means and standard deviations of selected sub-treatment groups using the acquisi-

Table 1
Descriptive Data for Treatment Groups on Acquisition Scores

ACROSS ALL TREATMENT GROUPS	Girls	Boy-words	Auditory	B.W. (High ability) $\bar{x}=7.80$ S.D.=3.47	
			$\bar{x}=9.70$ S.D.=3.38	G.W. (High ability) $\bar{x}=11.61$ S.D.=1.88	
		$\bar{x}=7.12$ S.D.=3.76	Auditory-Visual	B.W. (High ability) $\bar{x}=7.37$ S.D.=3.61	
				G.W. (High ability) $\bar{x}=6.67$ S.D.=2.86	
		$\bar{x}=7.67$ S.D.=3.67	Girl-words	Auditory	B.W. (Low ability) $\bar{x}=8.14$ S.D.=3.70
				$\bar{x}=8.31$ S.D.=3.52	G.W. (Low ability) $\bar{x}=8.49$ S.D.=3.32
	S.D.=3.49	Auditory-Visual	B.W. (Low ability) $\bar{x}=5.17$ S.D.=3.51		
			G.W. (Low ability) $\bar{x}=6.15$ S.D.=2.77		
	Boys	Boy-words	Auditory	B.W. (High ability) $\bar{x}=11.38$ S.D.=2.79	
			$\bar{x}=11.16$ S.D.=2.70	G.W. (High ability) $\bar{x}=10.95$ S.D.=2.60	
		$\bar{x}=8.81$ S.D.=3.66	Auditory-Visual	B.W. (High ability) $\bar{x}=8.45$ S.D.=3.60	
				G.W. (High ability) $\bar{x}=6.96$ S.D.=4.10	
$\bar{x}=8.12$ S.D.=4.11		Girl-words	Auditory	B.W. (Low ability) $\bar{x}=9.33$ S.D.=3.27	
			$\bar{x}=9.27$ S.D.=3.32	G.W. (Low ability) $\bar{x}=9.21$ S.D.=3.37	
S.D.=4.11	Auditory-Visual	B.W. (Low ability) $\bar{x}=6.06$ S.D.=2.77			
		G.W. (Low ability) $\bar{x}=2.61$ S.D.=1.95			
$\bar{x}=7.90$ S.D.=3.90					

Table 2

Descriptive Data for Treatment Groups on Number of Words Learned

A C R O S S A L L T R E A T M E N T G R O U P S	Girls	Boy-words	Auditory	B.W. (High-ability)	\bar{x} = 3.27 S.D. = .99	
				G.W. (High ability)	\bar{x} = 3.87 S.D. = .34	
		\bar{x} = 2.98 S.D. = 1.22	Auditory-Visual	B.W. (High ability)	\bar{x} = 3.20 S.D. = 1.11	
				G.W. (High ability)	\bar{x} = 3.80 S.D. = .54	
		\bar{x} = 3.28 S.D. = 1.04	Girl-words	Auditory	B.W. (Low ability)	\bar{x} = 3.27 S.D. = 1.06
					G.W. (Low ability)	\bar{x} = 3.40 S.D. = .95
	Auditory-Visual		B.W. (Low ability)	\bar{x} = 2.20 S.D. = 1.33		
			G.W. (Low ability)	\bar{x} = 3.27 S.D. = .68		
	Boys	Boy-words	Auditory	B.W. (High ability)	\bar{x} = 4.00 S.D. = .00	
				G.W. (High ability)	\bar{x} = 3.80 S.D. = .40	
		\bar{x} = 3.55 S.D. = .76	Auditory-Visual	B.W. (High ability)	\bar{x} = 3.60 S.D. = .61	
				G.W. (High ability)	\bar{x} = 3.13 S.D. = 1.09	
\bar{x} = 3.26 S.D. = 1.07		Girl-words	Auditory	B.W. (Low ability)	\bar{x} = 3.60 S.D. = .61	
				G.W. (Low ability)	\bar{x} = 3.47 S.D. = .81	
	Auditory-Visual	B.W. (Low ability)	\bar{x} = 3.00 S.D. = 1.04			
		G.W. (Low ability)	\bar{x} = 1.47 S.D. = .96			
\bar{x} = 3.27 S.D. = 1.05	\bar{x} = 2.97 S.D. = 1.24	\bar{x} = 2.23 S.D. = 1.26				

tion scores, number of words learned, and retention score, respectively.

The tables indicate that mean differences between boy- and girl-word treatments for girls favor the girl-word treatment groups. The differences for boys favor the boy-word treatment groups. These differences hold for

the three dependent variables. When comparisons are made between treatment cells, there is only one mean difference that does not favor the direction of differences hypothesized. This is the BWAV vs GWAV treatment for high ability girls on the acquisition score means. On both the number of

Table 3

Descriptive Data for Treatment Groups on Retention Scores

A C R O S S A L L T R E A T M E N T G R O U P S	Girls	Boy-words	Auditory	B.W. (High ability) $\bar{x}=1.73$ S.D.=1.06
			$\bar{x}=2.60$ S.D.=1.31	G.W. (High ability) $\bar{x}=3.47$ S.D.=.88
		$\bar{x}=1.78$ S.D.=1.00	Auditory-Visual	B.W. (High ability) $\bar{x}=1.92$ S.D.=1.21
				G.W. (High ability) $\bar{x}=2.57$ S.D.=.73
		Girl-words	Auditory	B.W. (Low ability) $\bar{x}=2.13$ S.D.=.72
			$\bar{x}=2.13$ S.D.=.96	G.W. (Low ability) $\bar{x}=2.13$ S.D.=1.15
	$\bar{x}=2.21$ S.D.=1.15	$\bar{x}=2.64$ S.D.=1.12	Auditory-Visual	B.W. (Low ability) $\bar{x}=1.33$ S.D.=.79
				G.W. (Low ability) $\bar{x}=2.40$ S.D.=1.14
	Boys	Boy-words	Auditory	B.W. (High ability) $\bar{x}=2.93$ S.D.=1.00
			$\bar{x}=2.70$ S.D.=1.00	G.W. (High ability) $\bar{x}=2.47$ S.D.=.96
		$\bar{x}=2.54$ S.D.=1.07	Auditory-Visual	B.W. (High ability) $\bar{x}=2.14$ S.D.=.99
				G.W. (High ability) $\bar{x}=1.93$ S.D.=1.39
Girl-words		Auditory	B.W. (Low ability) $\bar{x}=3.00$ S.D.=.84	
		$\bar{x}=2.38$ S.D.=1.13	G.W. (Low ability) $\bar{x}=1.80$ S.D.=1.04	
$\bar{x}=2.18$ S.D.=1.18	$\bar{x}=2.15$ S.D.=1.21	Auditory-Visual	B.W. (Low ability) $\bar{x}=2.00$ S.D.=1.04	
			G.W. (Low ability) $\bar{x}=.86$ S.D.=.83	
		$\bar{x}=1.78$ S.D.=1.22	$\bar{x}=1.41$ S.D.=1.10	

words learned and retention measure, however, the differences favor the gw treatment. On the bwa versus gwa for low-ability girls the means are equal on the retention measure.

Mean differences between auditory and auditory-visual treatments consistently favor the auditory treatment on

the three dependent variables for both girls and boys.

Although no hypotheses in the study were made regarding treatment differences between girls and boys, it is noteworthy that the mean differences are very small. The greatest difference that exists is in the acquisition-score

means which favors the boys by a mean difference of .45.

Main outcome variables. Since the tests of the hypotheses involved forty-five comparison tables, only a summary of significant F values is presented here. Table 4 presents these findings.

Table 5 summarizes F values for analysis of covariance on the retention

scores, with number of words learned used as the covariate.

The table shows that significance in treatment effects disappears for the retention measure when number of words learned is held constant. Interest-loading effect is significant for both girls and boys, although the interpretation of the finding for girls is obscured by a 3-way interaction significant at the .05 level.

Table 4
Summary of Significant Outcomes on Orthogonal Comparisons

COMPARISONS	BOYS			GIRLS		
	No. of Words Learned	Acquisition Score	Retention Measure	No. of Words Learned	Acquisition Score	Retention Measure
BWA & GWA vs BWAV & GWAV (High ability)	*A	**A	*A		**A	
BWA & GWA vs BWAV & GWAV (Low ability)	**A	**A	**A	*A	**A	
BWA vs GWA (High ability)					**G.W.	**G.W.
BWA vs GWA (Low ability)			**B.W.			
BWAV vs GWAV (High ability)						
BWAV vs GWAV (Low ability)	**B.W.	**B.W.	**B.W.	**G.W.		**G.W.

* Significant at .05 level
** Significant at .01 level

A—auditory
A.V.—auditory-visual

B.W.—Boy-words
G.W.—Girl-words

Table 5
Summary of F Values on Three-way Analysis of Covariance
(Within Sex) on Retention Measure

Source of Variation	D.F.	F. Value—Boys	D.F.	F. Value—Girls
Ability	1,106	.3222	1,108	1.9832
Treatment	1,106	.2956	1,108	1.1171
Interest	1,106	4.0784*B.W.	1,108	12.2940**G.W.
A x Trt.	1,106	.7707	1,108	.5153
A x Int.	1,106	2.2673	1,108	3.3659
Trt. x Int.	1,106	3.3532	1,108	.2344
A x Trt. x Int.	1,106	.5158	1,108	6.6382*

* Significant at .05 level
** Significant at .01 level

Table 6 gives the findings on the one-way analysis of covariance when acquisition score, number of words learned, and the two combined variables are used as covariates respectively.

The table indicates highly significant differences in interest-loading effects when either one or two covariates are used. In every analysis the treatment difference favors the expected direction of significance.

Summary of findings

Findings on Acquisition Measures—Auditory and Auditory-Visual Treatment-Effects.

1. Mean differences consistently favored the auditory treatment. These differences reached significance for both boys and girls.
2. No salient differences were apparent in treatment effects be-

Table 6

Analysis of Covariance of Interest-Loading Treatments on Retention Scores

COVARIATE—ACQUISITION SCORE

Source of Variation	D.F.	Sum of Squares	Mean Square	F ratio	P value	
G I R L S	Interest	1	10.3691	10.3691	10.514 **	G.W. .001
	Error	115	131.6116	1.1444		
	Adjusted Error	114	112.4221	.9862		
B O Y S	Interest	1	3.8555	3.8555	4.7190*	B.W. .032
	Error	113	152.0642	1.3457		
	Adjusted Error	112	91.5064	.8170		

COVARIATE—NUMBER OF WORDS LEARNED

Source of Variation	D.F.	Sum of Squares	Mean Square	F ratio	P value	
G I R L S	Interest	1	14.0604	14.0604	15.9580**	G.W. .0003
	Error	115	131.6116	1.1444		
	Adjusted Error	114	100.4445	.8811		
B O Y S	Interest	1	7.6343	7.6343	9.1166**	B.W. .003
	Error	113	152.0642	1.3457		
	Adjusted Error	112	93.7892	.8374		

COVARIATES—ACQUISITION SCORE & NUMBER OF WORDS LEARNED

G I R L S	Interest	1	12.0161	12.0161	13.5695**	G.W. .0004
	Error	115	131.6116	1.1444		
	Adjusted Error	113	100.0641	.8855		
B O Y S	Interest	1	4.5691	4.5691	5.8507**	B.W. .017
	Error	113	152.0642	1.3457		
	Adjusted Error	111	86.6859	.7809		

* Significant at .01 level
** Significant at .05 level

G.W. = Girl-word
B.W. = Boy-word

tween high and low ability groups.

Interest-Loading Effects—Within Auditory Treatment

1. Almost without exception, differences in boy and girl-word treatments favored the sex of the subject associated with the predicated sex-loading.
2. Differences in interest-loading within the auditory groups reached significance for high ability girls but failed to reach significance for low ability girls.
3. For the boys, non-significant F values were found in learning scores for both high and low ability groups.

Interest-Loading Effects—(Within Auditory-Visual)

1. Non-significant F ratios were found for high ability girls and boys.
2. Highly significant differences were found for low-ability boys and girls on both acquisition variables.

Interest-Loading-(Overall Effect)

1. When number of words learned was used as a covariate in a three-way analysis of covariance, differences in means for retention were significant for both girls and boys. Interpretation of the findings for girls, however, was clouded by a second-order interaction. Further analyses, using a one-way covariance design showed highly significant differences favoring the predicated interest-loading for both girls and boys.

Findings on Retention Measures Auditory and Auditory-Visual Treatment Effects

1. Differences in mean-retention scores reached significance for boys, differences favoring the auditory treatment. When number of words learned was used as

covariate, differences in means were non-significant for both girls and boys.

2. No major differences were apparent in treatment effects between high and low ability groups.

Interest-loading Effects—(Within Auditory Treatment)

1. Differences in treatment effects consistently favored the sex of the subject associated with the predicated interest-loading.
2. Differences in interest-loading effects reached significance for high ability girls.
3. Significant F ratios were noted for low ability boys, but not for high ability boys.

Interest-loading Effects—(Within Auditory-visual Treatments)

1. Non-significant F ratios were found in retention mean differences for high ability boys and girls.
2. Highly significant differences were found for low ability boys and girls.

Conclusions

Several conclusions appear warranted on the basis of findings of the experiment:

1. There is some basis for the assumption that girls and boys at the primary level have already developed some divergent interests. Further, there is evidence to support the fact that adults are competent, within reasonable bounds, to designate referents of interest to boys and girls. It might be argued, on the other hand, that adults are cognizant of the likes and dislikes which the middle class culture imposes upon children.
2. Pictorial accompaniments to a written text appear to perform a distracting role in a text discrimination situation for children of

both high and low ability, although differences appear more pronounced with low ability groups. For girls, differences disappear when retention is measured.

3. The results of the investigation point to distinct evidence of differential discriminability related to textual stimuli of sex-related interest-loading. The evidence is more conclusive for subjects of low ability than for the high ability groups.
4. There is evidence, though not unequivocal, that retention of a textual operant after a period of time is facilitated by an interest-loading of the operant related to the sex of the subject. The findings of the investigation give no basis for this being a more potent factor for one ability level than another. There is also no evidence of this factor being related to the sex variable.
5. There are two treatment comparisons which appear to be related to sex. One is the auditory vs. auditory-visual treatment. Discrimination appears to be facilitated to a substantially greater degree for boys by omission of pictorial cues than is the case for girls. The other indication of sex-relatedness is evidenced by the significant findings for boys' retention in favor of the auditory treatment. The conclusion might be drawn that stimulus-treatment-retention effects may be more important for boys than for girls.

Educational implications

Implications for educational practice from this study can only be considered within the confines of the limitations relevant to the particular sample and the reliability and validity of measuring instruments. Furthermore, any

questions raised can only be tentative, pending further investigation. However, a few points seem pertinent in terms of reevaluation of current instructional practices and materials:

1. A salient implication arising from the study is that more should be known about the individual child in terms of his interests. Further, these interests should be capitalized upon in individualization of instruction. The determination of specific interests might well be a potent factor in making provision for the child's "free reading" activities.
2. The findings of the study rather seriously question the widespread use of pictorial cues in word presentation. A reevaluation of methods of presentation and the use of pictures as additional stimuli to the textual stimuli would seem in order. The findings lend some support to the notion that such a reexamination may be particularly crucial for low ability children.
3. Although significant findings related to interest-loading appear in the study, preparation and utilization of materials based on sex-typed referents are unwarranted until more extensive research supports the findings of the present investigation.

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Effect of Different Modes of Presentation of Reading Materials on Vocalism in Silent Reading

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THE ABILITY TO READ is an essential skill in modern society. For the child, reading forms the foundation for early school learning. For the adolescent, reading is the key to continued success in learning. It has been estimated by Bond and Tinker that 80 to 90 percent of the high school student's knowledge has to be acquired through reading (1). For the young adult, reading is an effective tool which can be used for achievement in a chosen vocation. Furthermore, reading as one form of communication, provides opportunities for meaningful participation in the American Democratic Society. Many opportunities, though, for full participation in the society, are open only to the more mature, skilled readers.

Business firms, recognizing the crucial role reading plays in society as a whole and in schools in particular, have developed numerous mechanical aids for improving reading skills. At times, these mechanical devices, through the influence of business, have been installed and used extensively in schools at all grade levels. Often the installation of such equipment in a school system preceded any proper critical evaluation of the equipments' uses and effects.

In many instances, the equipment was installed and used in programs of reading-rate training. The basic assumption, underlying such training, was that through the use of mechanical devices, which presented reading material at varying rates of speed, the reader's natural rate of reading improved correspondingly. In such an assumption the crucial role of vocal functioning

plays in reading is overlooked. Taylor (10) made clear this role by stating the following:

... the eyes do not dictate to the mind what it shall understand, neither does the mind dictate to the eyes where they shall look. There is an interaction between oculo-motor activity and the central processes during reading, each influencing but not controlling the other.

In effect, eye-movement rate may increase; but the crucial aspect of reading, comprehension, may not be influenced.

A further unexamined and unsupported assumption related to the uses and effects of mechanical equipment in reading-rate training was that through the increasingly rapid presentation of reading materials, lip-movement behavior, in the form of repeated or pronounced words, was prevented and eventually eliminated. Even though a number of educators, such as Lee (4) and Smith (7), have claimed mechanical instruments to be effective devices for decreasing lip-movement behavior, they have little research evidence to support this contention. McDade (5) pursued the topic of lip-movement behavior even further and claimed lip-movement behavior to be characteristic of only poor readers even though good readers evidenced the same kind of behavior in his experiment.

Other educational researchers, cognizant of the crucial role reading plays in the life of the individual but also more critical of the uses and effects of mechanical equipment, have for many years observed and studied the uses and effects of mechanical aids on the improvement of reading skills. Numerous investigations have been reviewed and summarized by such outstanding scholars as Spache (8); Tinker and McCullough (12); and Strang, Traxler, and McCullough (9). The reviews by these authors and additional reviews of individual investigations revealed that although researchers have studied the uses and ef-

fects of mechanical devices on various kinds of reading and related behaviors, the reviews revealed also that few researchers have investigated the effect of mechanical devices on the lip-movement behavior (vocalism) of readers during silent reading. Lee (4), Smith (7), and Taylor (10) investigated the use of mechanical equipment and its effect on reading and related lip-movement behavior and reported that subjects exhibited less lip-movement behavior after training with a mechanical device than they exhibited before such training. The findings reported by these investigators were based on visual observations of lip-movement behavior (vocalism) and were of questionable accuracy. Although it was possible for an investigator to visually observe a very overt type of vocalism, it was not possible for an investigator to record accurately, through visual observation, the incidence of vocalism as it is understood and described by Edfeldt and Cole. These authors state there are varying stages and degrees of vocalism in silent reading:

- Saying or loud whispering of almost every word.
- Faint whispering of many words.
- Pronounced lip movements but no sound.
- Faint (or no) lip movements, no sound but sufficient movements of the tongue to be felt by the fingers under the lower jaw.
- No sound, no movements of lips or tongue, but movements in the throat perceptible to the fingers if placed on the throat.
- No sound, no movements of lips or tongue or in the throat, directly perceptible to an observer, but movements which can be registered by means of electromyography.

Through this delineation of vocalism and other experimental evidence, it became apparent to researchers that the incidence of vocalism could not be accurately observed and recorded through visual observations. Subsequent research by Faaborg-Anderson (3) and Edfeldt (2), pioneers of electromyography as a method of recording vo-

calism (silent speech), not only substantiated the views of the earlier researchers but also provided researchers with proper and accurate instruments for recording the incidence of this complex behavior.

It is thus the purpose of this investigation to determine through proper instrumentation the effect of different modes of presenting reading material (mechanical and nonmechanical) on the incidence of vocalism in reading. For this investigation, vocalism is defined as any lip-movement behavior or muscle-action potential (visible or invisible) which is recordable through the use of the electroencephalographic recording equipment described in the procedures.

Review of research

To provide a conceptual framework for a review of the literature on mechanical equipment and its effect on lip-movement behavior, the research evaluated herein has been divided into two categories: vocalism in silent reading and the effect of mechanical equipment on lip-movement behavior (vocalism) during silent reading.

Research on vocalism in silent reading can be divided into descriptive periods, the periods being arbitrarily divided on the basis of the research methods used during the period.

The earliest period began about 1886. Researchers used observation and introspective methods to collect data. The essential findings during this period were that to read is, in fact, to vocalize and that vocalism could be observed when individuals attempted to memorize information.

A second period of research began about 1895. Researchers attempted to use more empirical methods of collecting data by designing experimental apparatus to record the tongue and lip movements of subjects. The major findings of this period included the recognition that intense thinking often

resulted in overt responses or vocalism; that silent reading produced more vocalism than did other kinds of mental activities; that all thinking is accompanied by lip movements; that vocalism was universal; and that new experimental methods had to be found to investigate the phenomenon of vocalism in silent reading.

A third period of research began in 1950, twenty years after the criticism of the research methods used in the period from 1895 to 1925. During this period researchers began evaluating instruments that could be used to accurately record the incidence of vocalism during silent reading. In the decade between 1950 and 1960, Faaborg-Anderson and Edfeldt (3) reaffirmed the earlier conclusions of researchers that the techniques used up until that time were inadequate and inaccurate.

Finally, in 1960, a fourth and probably the most fruitful period of research began with the publication of Edfeldt's study, *Silent Speech and Silent Reading* (2). Edfeldt concluded that poor readers had a higher incidence of vocalism than good readers had; that as the text material becomes more difficult, vocalism increases; and that the reading of a blurred text results in more vocalism than does the reading of a clear text. This study was important not only because of its content but also because the study established electromyography as a valid method for recording vocalism. In 1964 McGuigan (6), following Edfeldt's example, used electromyography to record the incidence of vocalism. These two studies were similar in that they were comparative studies which reported the differences in vocalism during reading and nonreading periods. However, McGuigan, unlike Edfeldt, presented the reading materials through a mechanical viewing device. McGuigan's findings differed from Edfeldt's in that McGuigan found there was no evidence that the difficulty of the material

affected the amount of silent speech. McGuigan's findings were similar to Edfeldt's since both reported an increase in vocalism during silent reading and also that results suggested that as reading proficiency increases, vocalism decreases. Even though these investigators used a valid technique for recording vocalism, neither investigator examined the effect of different modes of presentation on the incidence of vocalism among good and poor readers. It is difficult to determine whether the results of the research were due only to the experimental conditions (Hawthorne Effect) or whether they were valid results as the investigators claim.

Of the studies dealing with the effect of mechanical equipment on lip-movement behavior (vocalism) during silent reading, three researchers found vocalism decreased as a result of training with mechanical equipment. These investigators did not use any instruments for measuring vocalism but relied on visual observations for recording the evidence of it.

Lee (4) evaluated a reading program, which used a metronoscope (a mechanical device designed for improving phrase reading skills) for eight and a half months, by analyzing data from standardized reading tests. He revealed that speed and comprehension were increased and lip movement was almost eliminated, even though it was possible, as noted previously, to accurately record through visual observations the decrement in lip movement behavior (vocalism). For accuracy of measurement, over even a short period of time, this technique is inadequate. Taylor (10), the inventor of the metronoscope, completed an investigation on the effect of the machine on the reading skills of fifty subjects. Control and experimental groups were set up. Each group read the same material during ten thirty-minute practice sessions. The control group read the

material from mimeographed sheets while the experimental group read the material from the metronoscope. The investigator found, through visual observation, that the amount of lip movement during silent reading decreased. Taylor's visual observations of lip-movement behavior was both inadequate for the conclusions drawn and inaccurate for recording the incidence of vocalism especially when considering the period of time and the number of subjects used in the experiment. Smith (7) reported an experiment in which a fifth and sixth grade class were given instructions with the metronoscope and other supplementary materials. It was found the entire group made more than average progress. Head turning and lip reading practically disappeared. Smith failed to use any experimental design in this investigation and used only one group of students. Her conclusions regarding the disappearance of lip movement was based on visual observation which, as noted previously, is not an accurate method for recording the incidence of vocalism.

Statement of the problem

The major purposes of this investigation were to determine if there were significant differences in the incidence of vocalism during silent reading when different modes of presentation were used (mechanical, nonmechanical, and nonreading) among readers of different levels of reading achievement (reading achievers and retardates).

Elements of the problem

The problem involves testing two main-effect and one interaction hypotheses with three categories of vocalism to be acquired on each subpopulation during the investigation. The hypotheses to be tested are as follows:

1. There is no significant difference in the incidence of vocalism in silent reading between groups of

intermediate-grade pupils' reading materials presented mechanically, reading materials presented in textbook form, and intermediate-grade pupils not reading.

2. There is no significant difference in the incidence of vocalism in silent reading between groups of intermediate-grade pupils of different levels of reading achievement whether the materials are presented in textbook form or whether the pupils are not reading.
3. There is no significant interaction between the modes of presentation (mechanical, textbook form, and nonreading) and levels of reading achievement.

More specifically, the hypotheses will be stated with reference to the following analysis chart for each of the three raw scores in vocalism.

Modes of Presentation

	Me- chanical	Textbook Form	Non- reading
Levels of Reading A	Y_{11}	Y_{21}	Y_{31}
Achievement R	Y_{12}	Y_{22}	Y_{32}

1. Levels of reading achievement
There is no significant difference between total intermediate-grade pupils in Experimental Groups $Y_{11}Y_{21}Y_{31}$ and total intermediate-grade pupils in Experimental Groups $Y_{12}Y_{22}Y_{32}$ on the raw scores listed in the second major hypothesis.
2. Modes of presentation
There is no significant difference between total intermediate-grade pupils in Experimental Groups $Y_{11}Y_{12}$, total intermediate-grade pupils in $Y_{21}Y_{22}$, and total intermediate-grade pupils in Experimental Groups $Y_{31}Y_{32}$ on the raw scores listed in the first major hypothesis.
3. Interaction (mode of presenta-

- tion and level of reading achievement)
- a) There is no significant difference between intermediate-grade pupils in Experimental Group Y₁₁ and Experimental Group Y₂₁ on the vocalism raw scores during the mechanical presentation (Y₁₁) and nonmechanical (textbook) presentation for reading achievers.
 - b) There is no significant difference between intermediate-grade pupils in Experimental Group Y₁₁ and Experimental Group Y₃₁ on the vocalism raw scores during the mechanical presentation of reading materials to reading achievers and vocalism raw scores during the nonreading of achievers.
 - c) There is no significant difference between intermediate-grade pupils in Experimental Group Y₁₁ and Experimental Group Y₁₂ on the vocalism raw scores during the mechanical presentation of reading materials to reading achievers and the vocalism raw scores during the nonmechanical (textbook) presentation to retardates.
 - d) There is no significant difference between intermediate-grade pupils in Experimental Group Y₁₁ and Experimental Group Y₂₂ on the vocalism raw scores during the mechanical presentation of reading materials to achievers and the nonmechanical (textbook) presentation of materials to retardates.
 - e) There is no significant difference between intermediate-grade pupils in Experimental Group Y₁₁ and Experimental Group Y₃₂ on the vocalism raw scores during the mechanical presentation of reading materials to reading achievers and the vocalism raw scores during the nonreading of retardates.
 - f) There is no significant difference between intermediate-grade pupils in Experimental Group Y₂₁ and Experimental Group Y₃₁ on the vocalism raw scores during the nonmechanical (textbook) presentation of reading materials to achievers and vocalism raw scores during the nonreading of achievers.
 - g) There is no significant difference between intermediate-grade pupils in Experimental Group Y₂₁ and Experimental Group Y₁₂ on the vocalism raw scores during the nonmechanical (textbook) presentation of reading materials to achievers and the vocalism raw scores during the mechanical presentation to retardates.
 - h) There is no significant difference between intermediate grade pupils in Experimental Group Y₂₁ and Experimental Group Y₂₂ on the vocalism raw scores during the nonmechanical (textbook) presentation to retardates.
 - i) There is no significant difference between intermediate-grade pupils in Experimental Group Y₂₂ and Experimental Group Y₃₂ on the vocalism raw scores during the nonmechanical (textbook) presentation of reading materials to retardates and the vocalism raw scores during the nonreading of retardates.
 - j) There is no significant difference between intermediate-grade pupils in Experimental

Group Y₃₁ and Experimental Group Y₁₂ on the vocalism raw scores during the nonreading of achievers and the vocalism raw scores during the mechanical presentation of reading materials to retardates.

- k) There is no significant difference between intermediate-grade pupils in Experimental Group Y₃₁ and Experimental Group Y₂₂ on the vocalism raw scores during the nonreading of achievers and on the raw scores of vocalism during the nonmechanical presentation of reading materials to retardates.
- l) There is no significant difference between intermediate-grade pupils in Experimental Group Y₃₁ and Experimental Group Y₃₂ on the vocalism raw scores during the nonreading of achievers and the vocalism raw scores during the nonreading of retardates.
- m) There is no significant difference between intermediate-grade pupils in Experimental Group Y₁₂ and Experimental Group Y₂₂ on the vocalism raw scores during the mechanical presentation of reading materials to retardates and the vocalism raw scores during the nonmechanical (textbook) presentation of reading materials to retardates.
- n) There is no significant difference between intermediate-grade pupils in Experimental Group Y₁₂ and Experimental Group Y₃₂ on the vocalism raw scores during the mechanical presentation of reading materials to retardates and the vocalism raw

scores during the nonreading of retardates.

- o) There is no significant difference between intermediate-grade pupils in Experimental Group Y₂₂ and Experimental Group Y₃₂ on the vocalism raw scores during the nonmechanical presentation of reading materials to retardates and the vocalism raw scores during the nonreading of retardates.

Procedure and techniques

The procedures and their sequence for this study can be outlined as follows:

1. *Preliminary evaluation*
In September, October, and November of 1965, preliminary evaluations of approximately six hundred intermediate-grade children were made.
2. *Population selection*
In December and January of 1965, subjects were selected for the experiment on the basis of a reading-expectancy formula derived in a study by Toussaint (13).
3. *Further evaluation of the selected subjects*
In February of 1966, the selected subjects were evaluated further through the use of standardized instruments.
4. *The standardized routine of experimental procedures*
In March, April, May, and June of 1966, the selected subjects (in small groups and individually) were transported to a veteran's hospital and had the incidence of vocalism measured during a standardized routine of speaking and oral and silent reading.
5. *Recording and quantifying the data*
In June, July, and August of

1966, the data were quantified and recorded.

6. *The statistical analysis of the data*

From September, 1966, through January of 1967, the recorded data were further quantified and analyzed through the use of specific statistical techniques (i.e. t-test and the analysis of variance).

Analysis of data

The analysis of data was organized with attention to the vocalism raw scores which occurred during two modes of presentation of reading material and a third nonreading period to two groups of students reading at two levels of achievement. Two main-effects hypotheses and an interaction-effect hypothesis were tested for the criterion variables. Tests of homogeneity of variance are included where applicable with the dependent variable. In addition, data presented in the F-test summary tables for each main-effect and interaction-effect hypotheses include the sum of squares, mean squares, degrees of freedom, sources of variation, and results of the analysis for

testing the significance of difference at .01 level of confidence. Tables for the t-test include the mean, standard deviation, the tests for homogeneity or heterogeneity of variance where applicable, and results of the analysis for testing the significance of differences at the .05 and .01 levels of confidence.

As indicated in Table 1 there are nine significant interactions between vocalism raw scores. Eight of the nine significant interactions involved comparisons of Experimental Treatments Y₁₁ or Y₁₂ (Mechanical Presentation of Material, Level I and II) with other experimental groups. In each comparison there was a higher incidence of vocalism raw scores in the Experimental Groups Y₁₁ or Y₁₂ (Mechanical Presentation of Materials, Level I and II) than in the other compared group (either Nonmechanical Level I and II or Nonreading Level I and II).

Summary, conclusions, and recommendations

The major purpose of this study was to determine if there were significant differences in the incidence of vocalism during the mechanical and nonmechanical

Table 1

Summary Table of All Comparisons for Homogeneity of Variance (F-test) and Significant Differences Between Means (t-test)

Experimental Group (1)	Experimental Group (2)	F-value	Resultant t-test	t-value	Null Hypothesis
Y ₁₁	Y ₂₁	4.88	Heterogeneous	3.49*	Rejected
Y ₁₁	Y ₃₁	2.19	Homogeneous	2.59**	Rejected
Y ₁₁	Y ₁₂	1.20	Homogeneous	.026	Accepted
Y ₁₁	Y ₂₂	3.47	Heterogeneous	2.61**	Rejected
Y ₁₁	Y ₃₂	3.91	Heterogeneous	2.60**	Rejected
Y ₂₁	Y ₃₁	2.22	Homogeneous	2.21**	Rejected
Y ₂₁	Y ₁₂	6.26	Heterogeneous	7.65*	Rejected
Y ₂₁	Y ₂₂	1.40	Homogeneous	1.75	Accepted
Y ₂₁	Y ₃₂	1.24	Homogeneous	1.85	Accepted
Y ₂₁	Y ₁₂	2.80	Homogeneous	2.35**	Rejected
Y ₂₁	Y ₂₂	1.58	Homogeneous	.65	Accepted
Y ₂₁	Y ₃₂	1.78	Homogeneous	.64	Accepted
Y ₁₂	Y ₂₂	4.43	Heterogeneous	2.29**	Rejected
Y ₁₂	Y ₂₂	4.99	Heterogeneous	2.27**	Rejected
Y ₂₂	Y ₃₂	1.12	Homogeneous	.034	Accepted

* Significant at the .01 level of confidence.

** Significant at the .05 level of confidence.

ical presentations of reading materials and nonreading of intermediate-grade reading achievers and retardates. Also, the investigator attempted to determine if there were significant interaction effects on the incidence of vocalism raw scores between levels of reading achievement and modes of presenting reading materials.

The experiment was conducted for approximately nine months with 108 pupils in the intermediate grades. It was a part of a three-year study sponsored by the U. S. Office of Education entitled "Vocalism in Silent Reading." For this study preliminary evaluations of pupils' intelligence, arithmetic computation ability, listening ability, and reading achievement levels were made. From the preliminary evaluations pupils were selected for the experiment. Further evaluations were made of each participant's spelling ability, word-recognition skills, intelligence, and auditory discrimination ability. Following this, vocalism raw scores were recorded for each participant during a standardized routine of silent and oral reading activities.

For the analysis of the data, an analysis of variance design, treatment by levels, with randomly assigned treatments was used. The main-effects hypotheses were tested for vocalism between levels of reading achievement and between modes of presentation. Tests of homogeneity of variance and t-tests of significant differences were performed between each of the treatment means. An analysis of variance and t-test statistical programs were selected and used with the IBM Electronic Model 3600 at the Indiana University Research Computing Center.

A summary of the findings of this investigation follows:

1. No significant difference in vocalism raw scores were apparent between treatment groups at different levels of reading achieve-

ment across modes of presentation, i.e., Achievers $Y_{11} Y_{21} Y_{31}$ and Retardates $Y_{12} Y_{22} Y_{32}$.

2. Significant differences were apparent between different modes of presenting reading materials, i.e., Mechanical $Y_{11} Y_{12}$, Nonmechanical $Y_{21} Y_{22}$, and nonreading $Y_{31} Y_{32}$.
3. There were significant interactions apparent between modes of presentation (mechanical, nonmechanical, and nonreading) and levels of reading achievement (achievers and retardates).

The t-test of significant difference between individual treatment group means revealed that pupils in the Treatment Groups Y_{11} and Y_{12} (Mechanical Presentation, Levels I and II) had significantly higher vocalism raw scores in every comparison with the other two modes of presentation, i.e., Nonmechanical Y_{21} , Y_{22} and Nonreading Y_{31} , Y_{32} . Significant differences were apparent when comparisons were made with either reading achievers or reading retardates. More specifically, when one of the modes of presentation that was being compared was mechanical, a significant difference was apparent at either level of achievement (Achiever Level I and Retardate Level II).

The effect of higher vocalism scores at both levels of achievement for the mechanical presentation was consistent. However, there was no apparent nor consistent effect at the different levels of achievement independent of the modes of presentation.

Conclusions

Even though the investigator attempted to control many variables affecting the incidence of vocalism raw scores, the conclusions drawn from the analysis of the data in this study are restricted to the population described in this study.

The conclusions of the study involve consideration of vocalism raw scores at both levels of reading achievement and modes of presentation. Conclusions about the levels of achievement and modes of presentation were drawn from the analysis of the incidence of vocalism raw scores.

In reviewing the findings of the study related to levels of reading achievement, it is evident that vocalism, as a form of behavior related to reading, is characteristic of both reading achievers and reading retardates. Although there was an attempt by the investigator to determine if differences exist between reading achievers and retardates on vocalism raw scores, no differences were apparent. Thus, it may be concluded that although reading achievers and retardates exhibited vocalism during silent reading, there is no evidence to suggest that there are significant differences between the amount of vocalism exhibited by the achievers and retardates.

In reviewing the findings of the study related to modes of presentation and incidence of vocalism raw scores, it is evident that there is a significantly higher incidence of vocalism during the mechanical mode of presentation. The significantly higher incidence of vocalism raw scores is most apparent in that it was present in every comparison of the mechanical presentation of materials, except in the single instance when the mechanical mode was compared with itself at two levels of reading achievement (Treatment Group Y₁₁ Level I and Treatment Group Y₁₂ Level II). Thus it may be concluded that the mechanical presentation of reading materials effects a higher incidence of vocalism raw scores and that the significantly higher scores are apparent at both levels of achievement.

Recommendations

As a result of the findings and con-

clusions in this study the investigator recommends the following:

1. Implications for educational practice
 - a) Reading improvement programs which are considering the use of mechanical equipment should attempt to evaluate the effects of mechanical devices before using them.
 - b) Reading improvement programs which are presently machine oriented should evaluate the long-term effect of the mechanical devices on readers of all ability levels.
2. Further study
 - a) A longitudinal study based on the second recommendation should be considered.
 - b) Studies similar to the present investigation should include different recording and measuring devices, such as the Visicorder.
 - c) Studies that introduce various kinds of mechanical devices and reading materials should be conducted.
 - d) Studies that include larger student populations at all levels of reading ability should be done.
 - e) Studies that attempt to determine the influence of achievement levels on the incidence of vocalism should also be done.

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Relationship Between Mother's
Style of Communication and Her
Control System to the Child's
Reading Readiness and
Subsequent Reading
Achievement in First Grade

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THE MAJOR PURPOSE OF THIS STUDY was to ascertain more definitely the relation of maternal styles of communication and maternal control system to the child's reading readiness and subsequent reading achievement in first

grade. It was thought that this study might also throw light on other home conditions related to achievement in reading.

The specific purposes of this investigation were 1) to describe the differing styles of communication that mothers in three social classes employ with their preschool children, 2) to describe the differing family control systems that mothers in these social classes employ with their preschool children, 3) to describe a number of other home conditions occurring in these social classes, and 4) to ascertain relationships between maternal behavior and other home conditions and the child's reading readiness and first grade reading achievement.

Related research

Recent research has indicated that a child's cognitive style, that is, his way of perceiving, reasoning, or remembering styles of communication that enters first grade. There is also some evidence that the behavior of the mother is influential in establishing the learning pattern of her child.

Bernstein of the University of London has differentiated two discrete language styles: the elaborated language style, generally used by members of the middle class, the restricted language style, primarily used by members of the lower classes. Bernstein also described two types of family control systems, one common to the parents of the middle class and the other to the parents of the lower classes (1).

In one recent study Hess and his associates of the Urban Child Center of the University of Chicago conducted considerable research on the relation between certain elements of maternal behavior and the cognitive style level of the child. Specifically, these researchers discovered that the level of abstraction of a mother's language was significantly related to the cognitive style level achieved by her child. They

also determined that mothers of four different social classes employed different styles of communication, with middle-class mothers employing a predominantly elaborated language style and mothers of the lower classes employing a predominantly restricted language style (3).

In further research Hess and his researchers (4) reported a relation between the family control system, or system of family regulation employed by the mother, and the child's level of cognition. They also found that middle-class mothers employed a predominantly person-oriented control system, a type of family regulation in which the mother talks to the child using instructive statements and gives her child a rationale for family rules. On the other hand, they discovered that the mothers of the lower classes used a predominantly status-oriented control system, a type of family regulation in which the mother talks to the child using imperative statements and in which she gives her child rules in which compliance is the only possibility.

Another phase of the research conducted by Hess and his associates (2) attempted to ascertain the teaching style employed by each mother while teaching her child to reproduce several designs on an "Etch-a-Sketch," a commercially available toy. These researchers discovered that maternal teaching style was related to the cognitive style level achieved by the child. They further found that middle-class mothers employed the most precise and specific directions while mothers of the lower classes used less precise statements.

Hypotheses

As a result of the findings of the reported research, the following hypotheses were investigated in this study:

1. Children of mothers who characteristically employ a highly elaborated language style will make significantly higher scores on a reading readiness test and on reading achievement tests than will children of mothers employing a highly restricted language style.
2. Children of mothers who generally employ a person-oriented control system will make significantly higher scores on a reading readiness test and on reading achievement tests than will children of mothers employing a status-oriented control system.
3. There will be a significant relation between certain other home conditions and children's scores on a reading readiness test and on reading achievement tests.
4. There will be significant differences between the language styles of mothers in three social classes. The middle-class mothers will employ a highly elaborated language style; the upper-lower class mothers will employ a less elaborated language style while the lower-lower class mothers will employ a high restricted language style.
5. There will be significant differences between the family control system employed by mothers in three social classes. The middle-class mothers will employ person-oriented control system; the upper-lower class mothers will employ portions of both the person-oriented and the status-oriented control systems while the lower-lower class mothers will employ a status-oriented control system.
6. There will be significant differences between certain other home conditions occurring in three social classes.

Description of the subjects and methods of collecting and treating the data

A pilot study to evaluate the data-gathering instruments used in the home interviews conducted for this study was made in early March 1966. In this pilot study the investigator visited the homes of four mothers and their four kindergarten-aged children. As a result of the pilot study, the data-gathering devices were revised.

The sample in the actual experiment consisted of fifty-five mothers and their fifty-five kindergarten-aged children, these being composed of three different social groups. The middle-class group consisted of nineteen mothers and their nineteen children, the mothers being members of college-educated professional families residing in or near a small midwestern college town. Nineteen mothers and their nineteen children were chosen to compose the upper-lower class group, these mothers being members of high-school educated skilled families also residing in or near the same college town. Seventeen mothers and their seventeen children comprised the lower-lower class group, these mothers being members of predominantly elementary-educated semi-skilled or unskilled families who resided in an adjacent culturally disadvantaged rural area. The criteria for selecting the groups followed those of Hess and his associates for three of his four social groups (3).

Home interviews were employed as one major method of collecting data for this study. The home interviews were begun in March 1966 and concluded in May 1966. The interviews consisted of four parts, the first of which was a structured mother-child interaction designed to assess maternal teaching style. The investigator brought two simple jigsaw puzzles to each interview, and the child was asked to choose the one that he would

like to put together. The two puzzles were part of a set of puzzles and were of the Winnie-the-Pooh motif. The investigator gave the following standardized direction for the mother-child interaction: "X has chosen to put together this puzzle. Would you pretend that he has never put together a puzzle before and show him in your own way just how to go about it." The structured mother-child interaction was tape recorded to allow the writer to more accurately appraise maternal teaching style, as well as to evaluate maternal language style as described later.

The second phase of the home interviews consisted of a number of open-ended questions of cognitive development to ascertain a measure of the family control system employed by the mothers. To devise the major part of the open-ended questions, the investigator studied the elements of the person-oriented and status-oriented control systems as defined by Hess and his associates. The maternal responses to the open-ended questions were tape recorded and rated by the writer and a senior college student.

The maternal language protocols used in this study to assess maternal language style were obtained by using the tape recorded maternal statements during the first two phases of the home interviews. The investigator typed verbatim transcriptions of these two sections of the home interviews in their entirety. The language protocols were analyzed using six of the language scales developed by Hess and his researchers (3); namely, those of 1) Mean Sentence Length, 2) Adjective Range, 3) Adverb Range, 4) Verb Elaboration, 5) Complex Verb Preference, and 6) Syntactic Structure Elaboration.

In the third phase of the home interviews, the investigator obtained the children's daily schedules for a week-day from each mother. Each mother

reported the daily activities of her child to the investigator, and the investigator recorded them on a copy of the daily schedule blank.

The final data gathered during the home interviews attempted to assess the home pre-reading activities in which the children had engaged. The investigator asked each mother questions from a structured parent schedule of prereading activities which the investigator had prepared and then she recorded their responses on a copy of the scheduled blank. The home pre-reading activities were in the areas of experiential background, awareness of reading, oral language, and visual and auditory discrimination.

In May 1966, the investigator gave the fifty-five kindergarten-aged children in the study the Metropolitan Readiness Tests, a standardized measure of reading readiness attainment. In the early fall of 1966, the first grade teachers of the fifty-two remaining children in the sample were asked to rate the children on a number of behavioral characteristics of reading readiness using the reading readiness observational checklist, an instrument designed by the investigator to attain a measure of reading readiness. An accompanying teacher's manual was designed to aid teachers in the appraisal of these characteristics.

In late February and early March of 1967, the investigator gave the remaining fifty-one children in the study the Gilmore Oral Reading Test, a standardized individual reading test designed to assess reading comprehension, accuracy, and rate. She also administered to the children the four subtests of Word Reading, Paragraph Meaning, Vocabulary, and Word Study Skills of the Stanford Achievement Test.

Relationships which existed between the variables obtained during the home interviews and also by teacher observation and the children's performance on

the Metropolitan Readiness Tests, the Gilmore Oral Reading Test, and four subtests of the Stanford Achievement Test were reported by the use of linear correlation.*

The variables gathered during the home interviews were also tested for possible significant differences among the three social groups by the use of the Mann-Whitney U Test, a non-parametric test of significance.

Major findings

The following were the major findings of the statistical treatment of the data:

1. Maternal teaching style as determined from maternal statements during the structured mother-child interaction was significantly related to children's reading readiness. In general, maternal teaching style was not related to first grade reading achievement.
2. Maternal family control system as ascertained from maternal responses to the open-ended questions was not significantly related to either children's reading readiness or first grade reading achievement.
3. In general, maternal language as measured by five of the language scales developed by Hess and his staff was not significantly related to reading readiness, although maternal language as measured by the language scale of Syntactic Structure Elaboration was found to be related. Maternal language as measured by three of the language scales was not significantly related to first grade reading achievement, although maternal language as measured by the language scales of Mean Sentence Length, Adverb

*All correlations in this study were computed on an IBM 1620 Computer.

- Range, and Syntactic Structure Elaboration was found to have some relation.
4. The child's daily schedule as ascertained from others during the home interviews generally was not significantly related to children's reading readiness or first grade reading achievement.
 5. Home prereading activities as ascertained from maternal responses to the structured parent schedule of prereading activities were significantly related to children's reading readiness. However, home prereading activities were related to first grade reading achievement in the middle class only.
 6. Reading readiness attainment as measured by first grade teacher observation using the reading readiness observation checklist was significantly related to children's reading readiness on a standardized test. In general, teacher observation of reading readiness was significantly related to first grade reading achievement.
 7. In general, no significant differences in maternal teaching style as ascertained by maternal statements during the structured mother-child interaction were found among the three social groups.
 8. Significant differences in maternal family control systems were found among the three social groups. In general, middle-class mothers employed a predominantly person-oriented control system; upper-lower class mothers employed portions of both the person-oriented and status-oriented control systems, and lower-lower class mothers employed a predominantly status-oriented control system.
 9. Significant differences in maternal language as measured by six language scales were found among the three social classes. In general, middle-class mothers employed a predominantly elaborated language style; upper-lower class mothers used a less elaborated language style, and lower-lower class mothers employed a predominantly restricted language style.
 10. Generally significant differences in children's daily schedules as reported by mothers during the home interviews were found among the three social classes.
 11. Significant differences in home-prereading experiences as ascertained by maternal responses to the structured parent schedule of prereading activities were found among the three social classes.

Value and use of the findings

The findings of this study may be of value to mothers of preschool children, to teachers, and to others who work with mothers. The findings appeared to indicate some specific areas of maternal and home environment that may be the most closely related to children's reading readiness and subsequent first grade reading achievement. If these elements of the home environment are provided, children may be more likely to be ready for reading instruction and to achieve success in reading during their first year of school.

Mothers could modify the home environment provided for their preschool children in the light of the major findings of this study. Teachers and others who deal with mothers might illustrate the various elements of the home environment which were found to be the most closely related to reading readiness and achievement, indicating how the home environment could be

modified. Adolescent girls and boys could receive instruction in the elements of the home environment which were related to reading readiness and achievement, instruction thus preparing them to provide the most favorable environment possible for the preschool children in their own families at present and for those whom they may later have.

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Reading of Highly Creative Versus Highly Intelligent Secondary Students

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THE MAJOR PURPOSE of this study was to explore similarities and differences in the reading behaviors of two types of gifted secondary students, namely, the highly creative, HC, and the highly intelligent, HI. Specifically, this study was designed to focus upon an intensive analysis of the oral introspective and retrospective responses of each

subject to two written passages. Two ancillary purposes entailed: the development of procedures to secure the evidence of the reading behaviors for each subject in the two groups and the development of a classification framework for analyzing and organizing the data secured from the two groups for the comparative analysis implied by the main purpose.

Definition of terms. A clear understanding of the hypotheses and procedures generated from the major purpose requires the definition of the following eight terms:

1. *HC Group.* The HC group, highly creative, defined as freshman, sophomore, and junior students scoring in the top 15 percent for their grade and sex on the five-test creativity battery used initially by Getzels and Jackson but not in the top 15 percent of intelligence as measured by standardized intelligence tests.

2. *HI Group.* The HI group, highly intelligent, defined as freshman, sophomore, and junior students scoring in the top 15 percent for their grade and sex on intelligence measures but not in the top 15 percent of creativity as measured by the five-test creativity battery.

3. *Free Reading.* FR. Oral introspective responses made spontaneously by a subject to each passage read. The only demand was that the subject report everything which occurred to him as he was reading initially. The subject was thus "free" to define the task for himself.

4. *Free Reading Analysis.* FRA. Oral retrospective responses to questions designed to have a subject analyze and reconstruct the thinking for his responses in the FR. These questions were also used to check on any gaps or editing suggested by his FR responses. FRA responses immediately followed the FR.

5. *Controlled Reading.* CR. Oral introspective responses to a set of ques-

tions about a particular passage. A subject introspected from the point at which he first heard a particular question. These responses continued until a subject indicated that he had finished with a particular question. The question thus "controlled" the direction of the reading; it tended to limit the range of reading behaviors more specifically than in the FR.

6. *Controlled Reading Analysis, CRA.* Oral retrospective responses made by a subject immediately after he indicated that he was finished with a particular question for a passage. As with the FRA, these responses were made to questions designed to have a subject analyze and reconstruct the thinking for each CR question and to check on any previously unreported behaviors suggested by his responses in the CR.

7. *Literal Level.* Responses limited to the surface meanings or visible organizational aspects of the passages read; i.e., what the authors actually or literally said via the words and the manner in which the words were organized.

8. *Nonliteral Level.* Responses going beyond or penetrating beneath the surface meanings and visible organizational aspects of the passages to possible implied or symbolic meanings, affective overtones, structural or stylistic elements and their effects.

Hypotheses for this study

The following hypotheses were generated from the major purpose:

1. In the Free Reading, the responses of the HC group will be characterized by more expressions of the following behaviors in relation to the passages than will the HI group: affect, humor, imaginative representations, speculation, fantasy, imaging, sensations, and valuing.
2. In the Controlled Reading for literal meaning, the HC and HI

groups will not differ in their ability to comprehend and reproduce the directly stated details, facts, major ideas, and conclusions of a passage.

3. In the Controlled Reading for nonliteral meanings, the HC and HI groups will differ in the following ways:
 - a. The HC group will do more speculating about possible meanings, outcomes, purposes, and themes than will the HI group.
 - b. The HC group will propose more than one possible interpretive synthesis proceeding from combined intellectual and imaginative bases, while the HI group will develop and maintain one interpretive synthesis predicated on an intellectual basis.
 - c. The HC group will manifest more imaginative behaviors in relating or extending a passage's components to other contexts and situations directly and indirectly related, while the HI group will manifest more intellectual behaviors limited to situations directly related or requested.
 - d. The HC group will judge a passage on more subjective criteria (e.g., affect experienced, novelty of ideas, degree of personal participation, experience, interest), while the HI group will judge using more objective criteria (e.g., clarity, adequacy, logic of presentation, significance of ideas).
4. In the Reading Analysis, the HC group will differ from the HI group in the following ways:
 - a. The HC group will reveal more variation and shifting in their methods of thinking than will the HI group.

- b. The HC group will reveal more combining of affective, imaginal, and sensation-type elements with reading or cognitive abilities than will the HI group.

The significance of the study

Although there have been many studies comparing the reading achievement of gifted students with that of average and below average students, there have been virtually no studies which have compared various aspects of reading comprehension of diversely gifted individuals with one another. The lack of research in this area seems startling since reading is so crucial in this culture.

Hence, it was considered that this study might provide significant information about the intellectual functioning of two types of gifted students as revealed through the act of high-level reading. Specifically, this study could very possibly illuminate the manner in which differently gifted students responded to and processed ideas, information, and relationships by means of reading. Also, new facets of the complex act of reading might be discovered which would increase understanding of the various kinds of processes underlying this act. Furthermore, this study might yield new insights into reading as a general method of inquiry (i.e., as a means for acquiring, reflecting about, and utilizing ideas and relationships in printed materials) which would be of considerable value in the educative process.

Background of the study

The two types of gifted secondary students focused upon in this study were previously identified by Getzels and Jackson in a study of giftedness. They found that these students differed in personality, environmental, and cognitive characteristics but not in total achievement as measured by stan-

dardized tests. Torrance found some differences between these two kinds of students at the elementary level on specific verbal and numerical tests. However, prior to and during this investigation, no research was located which dealt intensively with the reading of highly creative, HC, versus highly intelligent individuals, HI, from the standpoint of problem-solving, using reading, or from analyses of the reading act per se.

This gap in knowledge about the reading processes of gifted individuals led to speculations about possible similarities and differences in their cognitive functioning in the reading act. From speculations about the cognitive functioning of creative versus highly intelligent noncreative individuals in reading, there emerged the outlines of a problem centered upon possible similarities and differences in their reading behaviors which evolved into an exploratory study of the reading behaviors of HC versus HI individuals.

In formulating both the conceptual and methodological aspects of this investigation, the research and theory from three areas were drawn upon: cognitive giftedness, problem-solving, and reading. The first area contributed more to the conceptual aspect of this study while the second and third contributed more to its methodological aspect. A case study approach utilizing oral introspection and retrospection was selected as the best means for exploring the cognitive or reading behaviors for two reasons: the lack of information available concerning the reading of the two kinds of individuals and the desire to secure more evidence about their reading than would be available from examining only the end products of their reading.

Procedures of the investigation

Three general phases were conceived to achieve the major purposes of this study: 1) the development of the con-

ceptual framework; 2) the formulation of the methodology through which to secure the evidence of the reading process; and 3) the analysis of the data through the use of an experimental classification framework. Each phase involved two or more aspects.

Development of the conceptual framework. The conceptual framework of this study was evolved primarily from a survey of related research and theory in the area of cognitive giftedness rather than in the areas of reading and problem-solving. One aspect of this survey was to identify the sets of specific characteristics which were considered to distinguish highly creative from highly intelligent noncreative individuals. The second aspect was to relate these sets of characteristics logically to the reading act. The accomplishment of the second aspect was based on the assumption that reading was a cognitive act.

Two sets of differentiating characteristics were gradually evolved which seemed relevant to reading. One set "described" creative individuals, the other set "described" intelligent and noncreative individuals. From these sets of characteristics extrapolated to the reading processes, all but Hypothesis 2 were developed. It was derived from the research in reading.

Procedure for securing evidence of the reading process. The procedures for selecting the two gifted groups for the main study, along with scores on reading tests, were a general replication of the selection procedures used by Getzels and Jackson in their study of giftedness. Replication of these procedures provided the rationale, methods, and criterion measures for selecting the two types of gifted secondary students for this study.

The subjects for both the three pilot studies and the main study were identified in the freshman, sophomore, and junior classes of one midwestern private school, but the actual data were

collected one year later. They were selected on the bases of intelligence measures, a five-test creativity battery, and measures of reading achievement. All subjects were achieving in reading well above grade level. There were eighteen subjects in each of the two experimental groups of the main study, the IIc and III groups of subjects for the three pilot studies, which were carried out to ascertain the most effective techniques and tasks for securing the evidence of the reading behaviors in the main study.

The techniques and tasks using the semistructured interview for the main study followed the below-noted sequence. Each subject was given a preliminary training session, requiring approximately two academic hours, in the use of the oral introspective and retrospective techniques. The instructions emphasized that everything was to be reported as the subject worked with the reading tasks and that there were no "right" answers.

After completing the training interview, a set of semistructured interviews for which all responses were tape recorded was carried out with each subject. The responses from these interviews constituted the raw data for the analysis of the reading behaviors of the two groups. First, for the FR section, each subject introspected as he read a passage until he indicated he had finished. No questions were asked, but reminders to respond were given. Second, the FRA section immediately followed the FR, and the subject analyzed and reconstructed his FR responses. Questions were used to stimulate his recall. Third, for the CR section, each subject introspected from the point at which he was given a question pertaining to a passage. Reminders to respond were given. Finally, the CRA section for a particular question began when the subject indicated he was through introspecting to it. After the CR and CRA sections

for one question were completed, the subject was given the next question, and the aforementioned procedures were repeated. Questions asked in the CRA section paralleled those asked in the FRA section.

The two passages read in the main study were a prose excerpt from a novel, *The Stranger*, by Albert Camus, designated as Passage A, and a poem, "Grasshopper," by E. E. Cummings, designated as Passage B. Both passages met all criteria established for providing opportunities for revealing a wide range of reading behaviors. Passage A was read and responded to first, followed by Passage B.

Analysis of the data using an experimental classification framework. Both the general purpose and the hypotheses required 1) the identification of the distinguishing characteristics in the protocols secured from the two groups, 2) the quantitative organization of each characteristic identified in order to ascertain the frequency with which it was manifested in the protocols, and 3) the use of the frequencies derived to make comparisons between the verbalized reports of the two groups.

Previous models for analyzing mental processes were found unsatisfactory for such reasons as insufficient scope and level of generality. The experimental classification framework was developed primarily from abstracting characteristics from the data and then comparing these characteristics with "components" of other models for such purposes as precision of statement, terminology, and support for types of thinking described. This framework required a number of revisions before a level of reliability of 70 percent agreement among the judges was reached. The judges independently classified the responses of one HC and one HI subject for both passages. Subsequently, all responses of all subjects were analyzed and classified by investigator.

The classification framework in the form applied to the protocols of the main study had two general dimensions which constituted two major styles of thinking. Dimension 1, Intellectualive, included six cognitive patterns or types of thinking: 1.1 Limiting; 1.2 Recalling; 1.3 Analyzing; 1.4 Synthesizing; 1.5 Extending; and 1.6 Evaluating. Dimension 2, Imaginative, also included six cognitive patterns: 2.1 Searching; 2.2 Speculating; 2.3 Discovering; 2.4 Envisioning; 2.5 Fantasying; and 2.6 Valuing. The code numbers preceding the patterns showed the specific classification of each response and permitted frequency counts of the number of responses made by a subject in each pattern and dimension. The basic response unit of the classification framework was defined as a verbalization revealing one pattern within one dimension containing one idea. Repetitions of the same idea within the same pattern were excluded from the frequency counts. Certain content elements were also defined and included within the framework, namely, images sensations, affective manifestations, humor, different types of major interpretations, and role-playing. All responses were analyzed for evidences of these pattern and content elements. The classification framework was used for all sections of the reading task.

Frequency counts were computed separately for the responses of each group for the characteristics noted in the hypotheses. Some means and percents were also computed. Comparisons of the performances of the HC and HI groups were made using the chi-square statistic to determine if there were any statistically significant differences between them. The chi-square statistic was used in two ways: as a test of association where the overall performances of the two groups on several characteristics were compared and as a test of the goodness of fit

where the performances on one characteristic were compared.

Findings related to the hypotheses

All findings secured in testing Hypothesis 1 were based upon the frequency counts derived from the analysis of the data using the classification framework.

As was predicted for the Free Reading, the HC group exceeded the HI group in the frequency counts made of the responses for selected content elements and cognitive patterns. Specifically, the responses of the HC group exceeded those of the HI group for these elements by almost six times the number of images and sensations, by four times the number of affective manifestations, and by almost thirteen times the number of humorous statements. Significant differences (.001 level) were found when the performances of the HC and HI groups for each of the elements were separately compared. A significant difference (.01 level) was also found when the over-all performances of the groups for these elements were compared. For the cognitive patterns, the HC group exceeded the HI group by one and a half times the number of responses classified as 2.2 Speculating; by more than four times the number of responses classified as 2.4 Envisioning; by more than sixteen times the number of responses classified as 2.5 Fantasying; and by more than one and a half times the number of responses classified as 2.6 Valuing. Significant differences (.001 level) were found when the performances of the HC and HI groups on each of the cognitive patterns were separately compared. A significant difference (.001 level) was also found when the over-all performances of the two groups for these patterns were compared.

Hypothesis 2. All findings obtained in testing Hypothesis 2 were based upon frequency counts and percents de-

rived from the analysis of the data using the classification framework.

As was predicted in the reading for the recall of directly stated information in the Controlled Reading, the two groups showed virtually no differences in the number and quality of responses classified as 1.2 Recalling. No significant difference was found when the percents of responses manifesting 1.2 Recalling were compared for the two groups. However, on the number and percents of other responses made to the recalling questions not classified as 1.2 Recalling, a significant difference (.001 level) was found between the two groups for the two dimensions. The HI group produced more responses classified within the Intellective Dimension; the HC group, more responses within the Imaginative Dimension. *Hypothesis 3.* All findings secured in testing Hypothesis 3 were based upon the frequency counts, means, and percents derived from the analysis of the data using the classification framework.

As was predicted in the reading for implied or connotative meanings in the Controlled Reading, the HC group exceeded the HI group in the frequency counts made of the responses for selected content elements and cognitive patterns.

a. The HC group exceeded the HI group in the number of responses classified as 2.2 Speculating by approximately two and a half times. Significant differences (.001 level) were found between the groups on their total number of responses classified as 2.2 Speculating for Passage A, Passage B, and A and B combined.

b. The HC group exceeded the HI group in the number of major interpretations by nearly twice the number. A portion of major interpretative responses for the HC group were classified within Dimension 2, Imaginative, while no major interpretation responses were classified within this dimen-

sion for the HI group. A significant difference (.001 level) was found between the two groups on the total number of interpretations produced. All the HI major interpretations appeared to have an intellectual basis while those of the HC group appeared to have both intellectual and imaginative bases.

c. The HC group exceeded the HI group by almost five times the number of responses classified as manifesting imaginative behaviors in relating the components of the passages to other contexts and situations. The HI group exceeded the HC group by more than half again the number of responses classified as manifesting intellectual behaviors in relating passage components to other contexts and situations. Significant differences (.001 level) were found between the overall performances of the two groups on the total number of responses classified within the two dimensions for Passage A, Passage B, and A and B combined. A comparison of the total responses classified within each dimension for the HC group revealed a significantly greater number (.001 level) within the Imaginative. A comparison of the total responses classified within each dimension for the HI group revealed a significantly greater number (.001 level) within the Intellectual. However, some of the responses for each group were classified within the "dominant" dimension for the other group. That is, some responses for the HI group were classified as manifesting imaginative behaviors while some responses for the HC group were classified as intellectual.

d. The HC group judged the passages more frequently using subjective criteria than did the HI group based upon the number of responses classified as 2.6 Valuing for the questions designed to elicit judging responses. The HI group judged the passages using more objective criteria than did

the HC group based upon the number of responses classified as 1.6 Evaluating for the same questions. The HC group significantly exceeded (.001 level) the HI group on the total number of responses classified as 2.6 Valuing. The HI group significantly exceeded (.001 level) the HC group on the total number of responses classified as 1.6 Evaluating.

Hypothesis 4. All findings obtained in testing Hypothesis 4 were based upon the frequency counts and means derived from the analysis of the data using the classification framework.

As was predicted for the Analysis sections, the Free Reading Analysis and the Controlled Reading Analysis, the retrospections of the HC group differed from those of the HI group in the amount of shifting and variation in methods of thinking and in the combining of selected content elements with reading.

a. The HC group exceeded the HI group in the frequency counts for shifting and variation. However, these results were questioned for two reasons: first, the amount of shifting done by a group was found to be definitely associated with the number of responses made, suggesting a confounding effect, and second, more questioning by the experimenter was required for the HI subjects to reconstruct their responses than for the HC subject which probably produced some effects not clearly manifested in the responses.

b. The responses of the HC group exceeded those of the HI group in the number of instances combining affective, imaginal, sensation-type, and role-playing elements with reading. Specifically, the HC group exceeded the HI group by three times the number of affective manifestations and images, four times the number of sensations, and twenty-one times the number of role-playing manifestations. The HC group significantly exceeded (.001

level) the HI group in the total number of responses manifesting the four elements for Passage A, Passage B, and A and B combined.

Ancillary findings

When considered together, the preceding results implied the presence of different general reading styles for the two groups—at least for the tasks of this study. The total number of responses made by each group classified within the two general dimensions, Intellectual and Imaginative, was used as data to study the two general reading styles. Comparing the results for both groups revealed that for the HI group almost two-thirds of its total responses were classified within Dimension 1, Intellectual, and slightly more than one-third were classified within Dimension 2, Imaginative. In contrast, for the HC group almost three-fourths of its total responses were classified with Dimension 2, Imaginative, and slightly more than one-fourth were classified within Dimension 1, Intellectual. The HC group significantly exceeded (.001 level) the HI group on the total responses within the Imaginative Dimension for the combined FR and CR and the combined FRA and CRA. The HI group significantly exceeded (.001 level) the HC group on the total responses within the Intellectual Dimension for the combined FR and CR and the combined FRA and CRA.

Comparisons of the total number of responses classified within each dimension for the FR and CR combined and the FRA and CRA combined for the HC group revealed significantly greater numbers (.001 level) within the Imaginative Dimension. Comparisons of the total number of responses classified within each dimension for the FR and CR combined and the FRA and CRA combined for the HI group revealed significantly greater numbers (.001 level) in the Intellectual Dimension.

Limitations of the study

The findings of this study should be viewed with the following limitations in mind:

1. Conclusions and implications drawn from the results of this study can only be directly applied to the reading of literature. The demands and tasks of other content fields were not considered. Furthermore, the characteristics composing the differences between the two groups were manifested in response to complex materials, and the questions asked were generally formulated in probabilistic terms. Also, the set to secure the "right" answer was minimized.

2. Conclusions and implications drawn from the results of this study should only be applied to able readers. The reading achievement of all subjects participating in this study was very high, according to the tests used.

3. In retrospect, a definite limitation of this study was the exclusion of those students who were classified as both highly creative and highly intelligent according to the criterion measures. In all probability, members of this group would have the greatest potential for making a major contribution to society in the future.

4. The manner in which the hypotheses were developed for what was an exploratory study posed major problems in relating the data secured to them. The hypotheses were developed before any evidence of the actual reading behaviors of these students was secured. Difficulties arose in relating the characteristics of the data to some of the terminology of an analyses implied by the hypotheses. Not until the classification framework was fully developed and applied to the data were the problems between the hypotheses and the data revealed.

Major conclusions and interpretations

Bearing in mind the limitations and

the fact that this study was an exploratory investigation, several tentative conclusions were reached:

Conclusion 1. The two gifted groups appeared to exhibit different dominant and subordinate styles of reading for the areas of prose and poetry within literature. Further support for this conclusion was provided in a brief followup interview in which the subjects generally indicated that their reading in the experimental situation was quite typical of their reading in literature. While other content fields were mentioned, no definitive patterns could be established. The general characteristics of the dominant reading styles of the two groups are described in the next two paragraphs.

The HC reading style. The dominant reading style of the HC individual, as revealed through his oral responses, appeared to possess imaginative characteristics. He experienced many sensations and images which he apparently enjoyed and from which he constructed meanings not only for the materials read but uniquely for himself. He generated many speculations while reading which appeared to serve multiple purposes; i.e., exploring ideas and meanings, stimulating his own thinking as well as tying in his own experiences, and considering various types of relationships and ways of ruling out ambiguity in meaning. In analyzing, he was keenly sensitive to nuances in and connotations of types of words and their sound and visual patterns both in and out of the passage contexts, shifts in sentence patterns, dialogue structure, colors, textures, motion, temperature, time progression, image fragments, and characterization. He often fantasied while reading but frequently converted these fantasies later into striking, appropriate, and highly abstract interpretations at a symbolic level and provocative analyses of the general tone and mood of a passage. He also transformed essential compo-

nents of a passage easily into other contexts and artistic media. He "created" new situations and objects from the meanings and forms he used. His "bridges" to other contexts were apparently images, sensations, and/or role-playing. He seemed to be interested in experiencing what the author himself had experienced. His several interpretations for a passage were often quite different from one another, reflecting sharp insights into levels and types of themes and problems. He judged material primarily on what he secured from it as a person rather than on outside "objective" criteria, although he made some use of the latter. He also seemed quite aware of his processes in reading, verbalizing such processes easily and fully. In short, he seemed to have been able to penetrate through the screen of words describing the experiences reported by the authors and in so doing to recreate the essential realities which these experiences must have had. In this manner, the HC reader became a part of the experiences—he was there. Thus, he seemed to have read more "from within" than "from without"—although he was perfectly capable of the latter.

The HI reading style. In contrast, the dominant style of the HI individual, as revealed through his oral responses, appeared to possess intellectual or realistic characteristics. Experiencing few images or sensations, he was rather embarrassed about those he did receive and rarely used them in constructing meanings for the materials read. Although generating a considerable number of speculations, he seemed to use them primarily for the purpose of ruling out ambiguities encountered in the material. He was alert to specific types of stylistic devices used and systematically analyzed and categorized them in relation to the particular passage read. However, the subtleties and nuances contained

within the materials were often overlooked. He did not transform essential components of a passage read easily into other contexts and artistic media. Instead, he systematically compared and contrasted these components with direct or vicarious experiences or art forms to which he felt these components related. He did not "create" a new object or situation; he built a case for or connection to a pre-existing object or situation. His "bridge" to other objects and situations was the comparison-contrast. His use of images, sensations, or role-playing as "bridges" was virtually nonexistent. He was interested in securing the meaning of a passage *qua* passage as presented, rather than in experiencing what the author might have experienced. He judged material more on "outside" objective criteria than "subjective" criteria, although he made some use of the latter. In short, he secured the meanings conveyed in the language of the passages with speed and efficiency remaining apart from the underlying experiences which the authors might have had. Thus, he seemed to have read largely "from without"—seemingly neither able to read "from within" a passage nor desirous of so doing.

Conclusion 2. Speculating appeared to play a critical role in the reading of both groups when ambiguities, conflicts, and paradoxes were perceived in the materials. Both groups made use of speculating in the same ways, i.e., considering and selecting alternative meanings for a passage segment and minimizing ambiguities. However, the HC group appeared to use speculating in other ways, e.g., generating as many meanings as possible for a passage as a kind of mental game being played with and for themselves.

Conclusion 3. The classification of major interpretations into various cognitive patterns of the Intellectualive and Imaginative Dimensions for this study

revealed not only several types of major interpretations but also suggested possibly different "routes" for arriving at them. For the HI group, the "route" lay only in the Intellectualive Dimension. For the HC group, the "routes" lay in both dimensions. Characterizing the Intellectualive interpretations was synthesizing the meaning segments into a specific theme for a particular passage or extending the meaning segments into a "universal" theme with the passage viewed as an example of it. Characterizing the Imaginative interpretations was the experiencing of a generalized image often accompanied by sensations and affect which simultaneously concretized and symbolized the general meaning of a passage. Hence, for the major interpretations manifested in the protocols, meaning segments apparently constituted the basis for the intellectualive route while the generalized image apparently constituted the basis for the imaginative route.

Conclusion 4. The content elements of images, sensations, and role-playing were apparently an important part of the reading process for the HC subjects and a virtually irrelevant part of it for the HI subjects. The HI subjects tended to discard these elements as aids to meanings for a passage or to handling the demands of questions asked. In contrast, the HC subjects used all the elements—and particularly images—to secure meanings for passage segments, to form the basis for major interpretations, to "bridge" to other contexts and art forms, and to form the basis for fantasizing. The HC subjects apparently found their images, sensations, and role-playing not only useful and personally satisfying but also entertaining. In contrast, the HI subjects appeared to find the experiencing of such phenomena rather embarrassing, childish, and disruptive.

Conclusion 5. Although time-consuming and complex to apply, the clas-

sification framework for the data provided both a workable system for abstracting the major characteristics from the protocols of the subjects and a useful means for organizing these characteristics in order to make the subsequent comparative analysis for similarities and differences. Using this framework pointed up sharp differences between the reading of the two groups.

Implications of the findings

This study appears to have specific implications which are of significance for three areas: the understanding of giftedness, the understanding of the reading process, and curriculum planning.

First, with regard to giftedness, modes or styles to which the Imaginative Dimension seemed to have a particular connection were allocentric mode as described by Schachtel (1959), the preconscious processes as described by Kubie (1958), and three types of analogical patterns as described by Gordon (1961). In contrast, the Intellectual Dimension in this study seemed to have characteristics somewhat resembling what Bloom and his associates (Bloom et al, 1956) termed objectives in the cognitive domain and what Hadamard (1954) described as the "later conscious work." Also, the findings from this study would appear to fill a gap in our knowledge about the cognitive processes in reading—at least with regard to literature—for two kinds of gifted students.

Second, with regard to the reading

process, these findings further suggest that the high-level reading process, already recognized as being highly complex, may be even more complex than was previously thought. That is, the reading process, in addition to those features which comprise an intellectual or realistic dimension, also apparently has other distinguishing features which comprise an imaginative dimension. Furthermore, the classification framework might have value in examining the reading responses of other individuals by providing a basis for their analysis and classification. Also, since the framework is cognitively based, it should have value for analyzing the reports of thinking and problem-solving where reading is involved. The framework might stimulate the development of other frameworks which could provide increased insights into high-level cognitive and reading processes.

Third, with regard to curriculum planning, if the reading process contains two dimensions—and there may be others—then the differences found between the two groups in their reading have important implications. Specific areas which would seem to be involved are the teaching of reading, the utilization of reading in various kinds of problem solving in many areas, the development of appreciation—not only for literature but for other areas as well, and the possible use of reading as preparation for creative writing and other types of creative work.

THE INTERNATIONAL SCENE

The Role of IRA in Raising Reading Standards Around the World

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RESEARCH AND THE APPLICATION of research always stand to benefit by improved communications. The broader the spread of communication and the better the means of communication, the greater the progress within a given area. When many nations work in the same field, as is in the case of reading, it is particularly important, both for the research area itself and to related areas of application, to pool findings across national lines. Every effort should be made to enhance cooperation between teachers of reading as well as professionals of various kinds, such as, linguists, sociologists, psychologists, and medical doctors, in their undertaking of the improvement of the teaching of reading in a given region. In short, for optimum results what is required is cooperation on a truly interdisciplinary and international scale.

Since its start in 1956 IRA has undergone a tremendous and unprecedented expansion, which may be characterized as some kind of an explosion. The organization has grown at an ever-accelerated speed, not only as to members but also as to diversity of objectives, interests, and responsibilities.

At the present time there are more than 55,000 members, in 34 different countries of the world, in the association. This figure sounds very impressive, and it really is impressive. But at the same time the writer would immediately like to add that IRA is only

in the beginning of its activities on the international scene. If IRA is to be an international organization in a real sense, there is great need for new extra-powerful exertions. What then can one do in order to improve the possibilities of IRA to live up to its purposes and objectives, especially the following section of the objectives of IRA: "To promote the development among all peoples of a level of reading proficiency that is commensurate with each individual's unique capacity." This is a very big goal, a truly worthy goal for the activities and operations of IRA. If the organization is to move forward a little bit closer toward this goal, contributions to the association will have to be strengthened in many areas. A few will be considered in a rather sketchy way. In this paper the writer will present his proposals for what could be called a ten-point program for the international developments of IRA.

Point one

The first point concerns the organization growth of IRA. Efforts to build up reading organizations on all continents of the world—on local, regional, and national levels—should be intensified. Contacts should be made with other worldwide organizations. As the writer sees it, one can expect to reach desired results at a reasonable speed only through cooperation with other organizations with similar aspi-

rations. At the head of such a list, one would place ministries of education and national organizations of teachers, psychologists, and reading specialists.

The writer would like to sketch a year-by-year growth of IRA centers in different parts of the world, all aiming at stimulating development toward the far-reaching goal that there shall exist IRA representatives and IRA councils within all member nations of United Nations. It is suggested that an executive secretary be appointed for the European branch of IRA on July 1, 1969. At that time, the writer will cease to serve on the Board of Directors and also will cease to serve as chairman of the organization committee for Europe and the Near and Middle East.

Within the past few months two new national affiliates have been formed—one in West Germany and one in Israel—making a total of seven national affiliates of IRA within the region the writer represents, the others being Great Britain, Denmark, Norway, Sweden, and France. In order to continue the work of coordinating the activities of the various affiliates within the European and North Middle East region and in order to help them in all possible ways, a European branch office of IRA is needed. This office might serve best if it were to be located in London and headed by a competent person, possibly a professor of education at the London University, on at least a quarter-time basis and assisted by secretarial help.

By July 1, 1970—one cannot afford to wait any longer for the needs are great and immediate help is of paramount importance—the writer proposes the establishment of five additional IRA centers as follows. 1) Bangkok (to serve the Eastern Asia-region), 2) Brisbane (Australia and New Zealand), 3) Mexico City (Central America and South America), 4)

Addis Ababa (Africa), and 5) New Delhi (India and Pakistan).

Beyond this, it is proposed that by July 1, 1971, another seven major IRA centers in the following cities should be established: 6) Moscow (Eastern Europe and Western Asia), 7) Peking (China), 8) Cape-Town (South Africa), 9) Ibadan, Nigeria (Middle and Northern Africa), 10) Montevideo (Southern parts of South America), 11) Bogota (Northern parts of South America), and 12) Tokyo (Japan).

Projecting even further ahead, the writer would anticipate that by July 1, 1973, the central office of IRA for Europe in London would need to be extended. By that time, the executive secretary will need to be employed on at least a half-time basis, and secretarial help will be needed to a greater extent than before. In addition, by that date, there should be established IRA centers in another 13 spots of the world where the need has appeared to be greatest during this try-out organization period of IRA. In the middle of 1974, one should in this way have 25 IRA centers of a rather modest character plus one of a rather strong character—the London office. All of them will be coordinated from and be under the jurisdiction of IRA Headquarters in the United States.

Point two

IRA can play a very important role in stimulating and promoting research dealing with various aspects of reading ability. In close connection with the activities of IRA there already exists the ERIC/CRIER project which in the writer's opinion, is one of the most far-reaching and influential contributions for the stimulation of reading research hitherto provided, not to forget the stimulation of the teaching of reading as a whole. By the creation of ERIC/CRIER, there exists an invaluable platform for information within the reading field.

The writer wishes to underline that ERIC/CRIER, according to a recent newsletter, is a *national* clearinghouse administered by the *International Reading Association* in cooperation with Indiana University and the United States Office of Education. It seems highly desirable, however, that similar measures in collecting and evaluating information and making this information easily accessible be taken for all other countries. There is, therefore, a need for branches of ERIC/CRIER in some ten of the most advanced countries as an aid to reading research and studies concerning reading of various kinds. But later on—or rather the sooner the better—there should be introduced some report systems from all countries under the jurisdiction of the United Nations to a central unit in the United States ERIC/CRIER.

The United States is, no doubt, the leading country in reading research, and the overwhelming majority of all worthwhile studies within this field are carried out by American researchers. But, nevertheless, there might be some good and valuable investigations made in other countries, of studies worthy of being known here also. Let one begin by trying to establish a report system from European countries. Already such an undertaking will enable ERIC/CRIER to accomplish a more international intercommunication in reading research and reading methods than is the case now, and it will certainly lead to mutual benefit and advantage for all countries.

Point three

The writer suggests that IRA more actively than hitherto take up the task to act as some kind of clearinghouse for teachers and researchers willing to study or work in other countries in their schools, reading clinics, and research laboratories. Such an intermediary system for an international

exchange of professional personnel and students would be of great value for all countries. It may be wise to start at IRA Headquarters in the United States in a rather modest fashion. Let one, for instance, select only three or four nations to begin with. Gradually the operations within this section of IRA, handling the international exchange of personnel, should be expanded to include more and more countries. Little by little many of the tasks connected with this exchange service could be taken over by the main IRA branches on various continents. IRA could be of considerable help by publishing a catalog of all available funds of various kinds which might give financial support for such an international exchange of personnel.

As is known, the United Nations and its specialized agencies, such as, UNESCO, WHO, and FAO, are sending experts to many lands around the world to give technical advice in matters of health, education, and agriculture. Since 1959, the United Nations' special fund has been providing aid for service of local resources for development of educational facilities and for applied research. Each of these specialized United Nations' agencies has the benefit of getting advice from expert committees of scientists. They have developed programs dedicated to training and exchange of scientific and technological information. Each is on the alert for opportunities to apply new scientific ideas to help the less-developed countries.

Recently, a UNESCO survey has drawn the attention to the present importance of bilateral partnerships between educational institutions in countries around the world. Such cooperation could be practiced much more extensively in the area of reading. IRA should take an active part in stimulating such links between reading institutions in various parts of the world.

Point four

The writer questions how valuable a contribution any one predoctoral or postdoctoral fellow can make, individually, or how much he can benefit himself from a one-year period of study in another country. It would appear that a *team* of workers, comprised of researchers, predoctoral and post-doctoral candidates might make a far more effective contribution to any region embarking on a reading improvement program, than a single reading expert can make working on an exchange basis.

The writer suggests that small reading centers be established in four or five countries outside the United States, with one center in a university or college in the United States for the coordination of the activities connected with the reading centers abroad. Is it possible that one of the colleges or universities in the United States might coordinate such a work, having a faculty, facilities, and point of view to make such a program a reality?

The training program would not only prepare candidates for research and teaching of reading on an international level but would provide them with effective on-the-job-work on a specific problem with nationals in another part of the world, for the team would need to work closely with the professionals within the country under consideration. Such a program would be under the leadership of a university professor, and the visiting team ought to include at least one professor and one person very familiar with the language being dealt with, in addition to two or three experts within the field of reading (where possible, not only from the United States, but also from other countries) and two or three doctoral candidates.

A team approach seems imperative, if one is to make a realistic dent on the problems at hand. Would it be possible for a university or college to offer a

master's or doctor's degree on studies concerning reading development on an international level? And might group work provide academic degrees for the individual candidates involved in such a venture?

Individual research can not be expected to bring about results of the magnitude required to provide proper impact to problems of such a breadth. It is essential that the people of the country in question actively indicate a desire to participate with the team, to be centrally involved, so that they will carry on the work after the departure of the visiting IRA team.

Point five

IRA should play an active role as an initiator and stimulator of the construction and the introduction of *good reading materials* in different countries. This work could partly be done if a representative collection of selective materials, produced in various parts of the world was made available at IRA Headquarters. Obviously, this is an enormous task in itself and requires cooperation with many other organizations. Why not establish a council of collaboration, consisting of IRA members together with representatives of well-known book companies in various parts of the world? Surely it is quite feasible to get the big book companies interested in sending their best products in the reading field to a central library in IRA Headquarters, or elsewhere, where materials could be indexed and abstracted in four or five different languages at the expense of respective book companies. Through the central office of the main IRA branches, micro copies could be made available for interested IRA members and others. In that way impulses and ideas regarding construction of reading material could be more readily exchanged among all countries to the benefit of the development of reading ability at all levels.

Point six

There is certainly a great need for better communication between research and the application of research results in the actual teaching of reading in the classroom. Thousands and thousands of valuable research projects are carried out, but the results of these studies have often not come to the knowledge of the teachers, partly because of the fact that the research reports are written in a special way and are heavily loaded with all kinds of statistics, diagrams, and tables; and teachers therefore, possibly find them hard to read.

IRA should go beyond that level of service which implies that it act as a forum for information on research and that it put bibliographies and abstracts of research results at members' disposal. Teachers need help in their strivings to get the best possible advice that available research can give for their actual work in the classrooms, in the reading clinics, etc. IRA should intensify its work in bridging the gap between reading research and classroom practice by stimulating many more experts to analyze continuously research in various areas of reading in a critical and interpretative way in order to give teachers understandable information on the possible practical consequences of the research results. IRA could take the lead also in this respect by having its branches in various parts of the world stimulate reading experts in all countries to publish information of the possible applications of research results to classroom practice.

Point seven

IRA should extend its role at the international level in giving not only to teachers but also to the public information concerning the development of reading methods based on recent research results. Such information should be given not only by the printed word but also by mass media—tv and

radio. No doubt many, many more people will be reached by tv than through ever so elegantly designed brochures and posters concerning the importance of being able to read efficiently, and ever so well-formulated, persuading pamphlets showing the great value of reading ability and the access to good books for personality development as a whole. One certainly needs mass media in order to be able to advertise reading in an efficient way and in order to be able to reach all those one wants to reach, those who really need to improve their reading ability, those who cannot read at all, and those who can read but do not do it.

One needs to advertise the actual points of view on reading via tv companies around the world, and one must do it systematically, consciously of purpose, continually, and incessantly, while pointing out the importance of the book—the printed word—as an instrument of news and as a source of knowledge, relaxation, and recreation. The competition nowadays from mass media is so great that one has to put in co interattacks and give the utmost for what one believes; namely, the necessity of a good reading ability in the modern society.

Media-prophets of today, like McLuhan and others, are speaking another language and proclaiming that reading ability is, if not unnecessary, of secondary importance in the electronic age. They are using all kinds of mass media in order to influence the public. IRA should use the same mass media in order to advertise the importance of a good reading ability and have this message carried throughout the world.

Point eight

The growth of the Association regarding national affiliates will be greatly stimulated by face-to-face meetings between teachers and researchers

within the field of reading from different countries. IRA took its first important step on the international scene in this respect by arranging the First World Congress on Reading at UNESCO Palace in Paris in 1966. Speakers on the Congress program represented the following countries: France, Canada, United States, Denmark, Japan, United Kingdom, Austria, Norway, Germany, Sweden, Australia, Egypt, India, Israel, Ireland, and Brazil. Approximately 500 persons were registered for the two-day session. The experiences of this First World Congress were extremely encouraging in many ways.

The Second World Congress was held in Copenhagen, August 1-3, 1968. More than 1,300 persons were registered for the meetings. Crown Princess Margrethe of Denmark welcomed the visitors to the congress at which some 70 reading experts from various countries presented papers. It is hoped that IRA, in spite of the enormous amount of work and big costs involved, will in the future sponsor a world congress on reading in different countries throughout the world every two years.

There is much to learn from colleagues in other countries. One can, of course, meet them and in a way get acquainted with them by correspondence and through their books and articles. But the exchange of information, ideas, and views will be greatly enriched by personal contacts. In this way conferences on an international level are of the greatest value—not only because of the lectures and the open discussions in the meeting rooms but even more because of the opportunities found in informal small group and individual discussions. From the writer's point of view, world congresses are indeed paramount instruments for IRA in realizing its grand international purposes. By 1976 it is hoped that IRA's world congress will

have participants from more than 100 countries in the world and by 1980, from practically all of the member nations of the United Nations.

Point nine

All know that IRA for the present time is publishing three journals, all of a high quality: *The Reading Teacher*, *Journal of Reading*, and *Reading Research Quarterly*. A strong limitation in the reach of these journals is that they chiefly contain articles only in English. This condition applies in all its scope to *The Reading Teacher* and *Journal of Reading*.

The *Reading Research Quarterly* has wisely presented in French and in Spanish summaries of the articles published. This is naturally a big step forward toward the goal to make IRA journals international in a real sense. But much remains to be done. IRA has recently started some new projects on the international scene, projects which have given such promising and good results that they deserve attention and deserve to be duplicated even in countries in other parts of the world.

IRA has given the recently started National Council of IRA in West Germany the rights to translate into German and publish a collection of articles, originally having appeared in IRA journals or in the proceedings of IRA conventions. In Scandinavia there has recently been published a first edition of the *Scandinavian Review for Teachers of Reading*. This journal mainly consists of articles originally published in the journals of IRA, which are translated into Swedish, Danish, or Norwegian. In addition there are contributions written by Scandinavia's own reading experts.

The first venture to establish a Scandinavian journal for teachers and researchers within the field of reading, has been a great success, and the name of IRA has, through this journal,

reached practically all teachers within the compulsory school systems in Scandinavia. IRA's name is by now well known, highly esteemed, and respected in Scandinavia. Even this is an exceedingly great progress in the development of IRA in the direction of being a worldwide enterprise, able to influence the development of reading ability in various countries.

A first aim of course, must be that IRA as an association is known and that the professionals within the field as well as national governments know what the purposes of IRA are and what this Association can do.

By its generous support of the affiliates in Scandinavia and Germany IRA has gained ground in these areas in quite a considerable way.

In this connection the writer would like to point out that teachers in most European countries and probably also in Asia, Africa, and South America do not generally have an adequate knowledge of languages to enable them to follow professional writings in a language other than their own. Therefore, it is suggested that IRA periodicals should be translated into international editions, with one or two articles written by non-English-writing authors. It is recommended that enlarged editions be translated into several foreign languages, just as is the case with popular magazines such as *Life*, *Reader's Digest*, and *Time*. Of course it is necessary to move forward in this area step by step because of the big costs involved. In the beginning possibly alternate editions of the IRA issues in English might be translated. In this connection priority should be given to *The Reading Teacher*, though ultimately all journals might be comparably handled—perhaps by 1978.

Regarding the languages into which the journals might be translated, the following suggestions are submitted: one edition in French to cover France, Belgium, and French-speaking regions

elsewhere; one edition in German for Germany, Austria, and German readers elsewhere; one edition in Spanish for Spain, South America and Spanish readers elsewhere; one edition in a Scandinavian language which might rotate between Norwegian, Danish, and Swedish readers. Possibly there might be one edition at a later date in Japanese, another in Russian and another in Chinese (although this might not be considered feasible for the moment).

IRA should also stimulate the translation into English and the publishing of significant research reports appearing in foreign journals or books, for instance through the UNESCO institute in Hamburg. In that way members of IRA in America, Canada, Great Britain, and Australia could be given the opportunity to learn to know more about the research results and teaching procedures in other countries. Hopefully, translating-electronic devices will soon be available to translate speeches on reading into different languages.

Point ten

In spite of a worldwide expansion of education for children during the past decade, the number of adult illiterates is estimated to have *increased* by 25-30 million persons each year because educational progress has not kept pace with the rapid population growth. About 50 percent of the world's population—more than 1,500 million persons—cannot read at all. At least 65 percent of the world's population is estimated to fall below the level of functional literacy when one uses as a criterion the fourth grade level of reading ability. As an example, only 24 percent of the population of India is literate. With a population of 435 million, this figure means that 330 million are illiterates—330 million people are to be taught elementary reading skills and the picture of only one country!

It is necessary to underline that lit-

eracy is far more than a mere personal and individual problem. It is also a vast social problem and an economic problem. The struggle against illiteracy is one of the most important and also one of the most gigantic and demanding tasks of the present generation. This task has two facets: first, to eliminate illiteracy and, second, to raise the standard of functional literacy. If one is to succeed in his strivings to increase the number of literate children and adults around the world, there is a great need for joint effort.

What can individuals do in this respect? What can IRA do? Some might in their own area, in their own country, be able to stimulate literacy projects of various kinds at various levels. As for the IRA, this organization might wish to undertake literacy campaigns of its own or join those operating within the framework of the specialized agencies of United Nations. Some small first steps in this direction have already been taken by IRA by the introduction of a certain cooperation with UNESCO. But many more should be taken on the same and similar roads very soon. There is a great need for active and strong efforts to integrate all these world-literacy campaigns which now are going on—on many, many different fronts in various parts of the world—in order to eliminate illiteracy.

What is heavily needed is cooperation at all dimensions and at all levels—united actions together with all kinds of world literacy organizations. Many, many different religious organizations are doing a wonderful job in teaching people to read in connection with their missionary activities. There is a need for cooperation with them as well as with the governments of various countries, with special organizations within countries, with authorities of education, and with social welfare workers in this struggle against illiteracy. IRA should take an

active, leading role, not a passive, benevolent, observing role. IRA should take the lead to synchronize all the activities of all the different organizations in this respect.

The writer knows that IRA does not have at its disposal the enormous economic resources needed to carry through big literacy campaigns in various countries on its own. But IRA has—more than any other organization working within the literacy promotion area—experts, reading experts, and personal resources which can be of great help. The money needed should be provided by international and national associations, by governments, and by private foundations—not by IRA.

IRA's main task in this connection should be to assemble representatives from UNESCO, FAO, WHO, and other important agencies of the United Nations who are involved in literacy campaigns, with representatives of the many worldwide philanthropic organizations concerned with the literacy of adults and youths and representatives of world-literacy foundations, such as the Laubach foundation, to start cooperative actions on a big scale.

IRA should take the lead in such an assembly because IRA has at its disposal the world's most knowledgeable experts on reading research and methods of teaching reading. By taking the initiative in such a joint action and by giving guidelines for programs of various kinds at different levels, IRA can make an enormously important contribution to the fulfillment of one of its main purposes: to improve reading ability among all peoples around the world.

IRA should not wait for someone else to take the lead in the work of reducing world illiteracy. What is to be done should be done now. The needs are urgent. And the most competent persons to do the work live in the

United States and they are members of this association.

Comparative Reading: A Method of Research and Study in Reading

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THE PURPOSE OF THIS PAPER is to propose that one give formal recognition to a new method of research and study in the field of reading. The term *comparative reading* should be used as a label for an expanding category of investigation in reading. Furthermore, there should be more determined, deliberate, and conscious attempts to make comparisons between reading in different countries and different languages; and such studies should be conducted with more scientific rigor. Then one may encourage an increase in investment of research time and money in comparative reading studies because then, also, these are likely to be fruitful in increasing understanding of the basic processes of reading and learning to read.

Although the name *comparative reading* may be quite new, the method of drawing comparisons between reading in different nations and languages has been going on spasmodically for some time now. But there has been a rather noticeable spurt of interest in such studies in the past few years. For example, Nila Banton Smith (31) at the First World Congress on Reading in Paris, France, in 1966, declared:

Eventually we shall have worldwide reading research. Think what it will mean to accumulate an international pool of investigations in reading. Think of the value that will accrue from an exchange of research findings between nations. This is truly one of the most significant promises which the future of reading holds out to us.

The aims of comparative reading

By *comparative reading* one means the comparison of reading (and writing) behavior (including its learning) in different national, linguistic, and cultural groups. Such comparisons are worthwhile in their own right as an extension of knowledge of reading behavior, but also they have a much more-important, scholarly goal in scientific research in reading. By making comparisons between the reading behaviors of people in different nations with different languages one may learn much more about the fundamental processes of reading and how it is learned. Even from the limited view of the reading specialist of one particular nation one may understand much more about reading in his own country through making appropriate contrasts with reading behavior in others.

The potential value of comparative reading research may be judged by looking at the wealth of knowledge that has been derived from the use of the comparative method in other sciences, such as psychology, anthropology, and sociology. Witness, for example, how in psychology so much was learned about the development of human personality from the comparisons made between the different child-rearing practices of various cultures.

The potential of such cross-national and cross-cultural research has been very well described with regard to another subject of the school curriculum. Husen and Postlethwaite (19) in discussing comparative mathematics research state:

The school systems of the world represent a series of environments in which human beings learn and, as a group, are much more varied and contain far-greater differences than can be found or created in any one system. Thus educational "laboratory" situations exist in which many of the more profound questions concerning human growth can be studied objectively.

Their remarks apply with even

greater force in reading because in this field one is so much more concerned with language itself and views the world as a living laboratory, containing magnificent opportunities for the scientific study of the relationship between differences in linguistic variables and behavior in reading and writing and in learning these skills.

Besides this primary objective to expand scientific understanding, there is another potential value in comparative reading. The writer believes that courses in comparative reading should be offered to graduate and undergraduate students of reading. The value lies not only in the breaking down of students' ethnocentrism in reading but also in the new brilliance which such comparisons may give to descriptions of children's reading behavior and approaches to teaching reading.

These are the proposals. Now, turn to look at some of the existing studies which seem to belong already in this category of comparative reading.

Current state of comparative reading

One can discern three types of study which may belong to the proper area of study in comparative reading:

1. Studies which have been deliberately designed to make comparisons between reading in different countries.
2. Studies which were designed to describe objectively the reading practices in a particular country, in order to provide material for comparisons with other countries.
3. Studies which are limited to a particular country, but which, in addition, make some tentative comparative hypotheses.

Direct comparisons

The number of studies of the first type is small. Very few reading investigations have deliberately set out to make comparisons between different nations. The classic example of com-

parative reading research is William S. Gray's (14) international survey of reading, which still remains a lone pioneering and trail-blazing effort, just another product of Gray's foresight waiting to be picked up and continued by those fortunate enough to follow him in this field of reading research. All the other few deliberately comparative studies seem dwarfed by Gray's monumental work.

Reading was included in the cross-national research of *Educational Achievements of Thirteen-year-olds in Twelve Countries* by Foshay et al (12); but, although this type of scientific survey of comparative achievements is very useful in this early phase of development in the new science of comparative reading, it must be recognized that it can only provide a basis for hypotheses to be tested in much more-detailed and intensive research in the future. Furthermore, the age-level chosen for testing in this study may conceal fundamental differences which are overlaid through the cancelling-out process of a very large number of uncontrolled variables, which become more and more confused as the number of years of schooling increases.

Most of the remaining studies which have been deliberately comparative are concerned with the same problem as that to be discussed in the next paper in this sequence—Samuels' (29) study of "The relationship of the phonetic regularity of a language to success in learning to read." An extensive survey of methods of teaching reading in different countries with different languages was made by Lee (22). He attempted to relate teaching methods to the degree of regularity of grapheme-phoneme relations in a language. For example, Turkey and Finland have the highest degree of regularity in their languages, but Turkish teachers preferred a look-say approach while in Finland synthetic phonics methods were the vogue.

German reading was compared with American reading in a study by Preston (27) of children's word-recognition achievements in these two countries. He found that, in comparison to the difficulties experienced by American girls and boys, there was a "... strikingly high degree of success by German pupils in learning word-recognition." He noted several differences between the German and English languages which may account for the superiority of the German children in learning to read, the first of which is that "The German language is more consistent phonetically than the English language." He suggested that, "In learning to read English, some children in the United States, upon discovering that they cannot expect phonetic consistency, develop an insecurity and uncertainty."

In the writer's research on the effects of the conventional English writing system, it was found that the irregularity of grapheme-phoneme relations is a very important cause of difficulty in learning to read in the English-speaking nations. But this research does not belong in the field of comparative reading. It contrasted two large samples of British children, one learning to read with the irregular and complex traditional orthography of English and the other, with an experimental, simplified, and regularized writing-system for English—the Initial Teaching Alphabet (i.t.a.). The results of that seven-year research project were published a few months ago (7). However, concern with the writing-system variable, led the writer into the review of comparative reading research on this problem at the First World Congress on Reading (6).

That review led to the conclusion that "The general consensus of these few opinions on this problem seems to be that more simple and more regular writing systems such as those for Fin-

nish, Armenian, and German make it easier to teach reading, writing, and spelling."

Several important contributions to the theoretical discussion of the effects of differences in the writing system on the learning of reading have been made by Feitelson (8, 9, 10). In a paper presented at the First World Congress on Reading, Feitelson (11) indicated that Gray may have overlooked important differences in reading in different languages, saying:

For instance, the relative long fixations which Gray himself reports among Hebrew and Arabic readers when compared to readers of English, as well as the frequent regressions which he found among the readers of these two languages are directly ascribable to the special nature of the writing-systems in these two languages. The visual clues to which native readers in Hebrew and Arabic are exposed are less redundant than those in English. In this respect we could perhaps compare the reading of Hebrew, in a way, to reading shorthand. Under such conditions we would expect longer fixation periods and more regressions.

Feitelson's studies led her to conclude:

Research results about the teaching of reading cannot be transferred with impunity from language to language. Each language has a unique configuration of the way in which spoken language is transferred to writing. Methods of teaching beginning reading will in each case have to be developed anew for this unique configuration.

In the writer's first interim report on the British i.t.a. experiments which he presented to the Educational Records Bureau conference (5) in New York in 1962, it was pointed out that "one very significant conclusion" of work with i.t.a. was clearly justified: "Since most reading research has failed to control this factor of the printed medium (i.e., the writing-system of a language), *many generalized judgments on problems of reading instruction may need to be substantially modified.*" Thus reading research within one nation or in a single lan-

guage may be closely interrelated with studies in the comparative reading field, each providing alternative and complementary research methods for testing hypotheses about fundamental questions in reading.

Indirect approaches

A more-oblique approach to comparative reading may be discerned in the larger number of publications which give objective descriptions of reading practices in particular countries. These sometimes provide valuable, basic foundations for comparisons with reading in other countries. It is not possible to provide an exhaustive bibliography of publications of this type, but the following may be regarded as examples of the kinds of studies which provide more useful basic sources for students of comparative reading.

Two recent articles on reading in France provide useful starting points for comparative purposes. Chiland's (4) article, liberally illustrated with pages from French children's readers, provides a vivid insight into reading in France. She brings out particularly clearly some problems of content, teaching methods, school organization, and teacher training. Labrot's (23) paper on remedial teaching in France is a useful expansion of the picture of French reading.

The teaching of beginning reading in the United Kingdom is clearly and objectively described by Southgate (32), and some of this country's problems for future development are frankly indicated by Morris (25). Another recent study of more modest intent may be mentioned here as an example of the valuable information which can be provided by small, objective research studies in individual countries, *when the locale of the investigation is carefully defined and clearly delimited.* The study of Abernathy et al (1) of the reading habits and inter-

ests of children in Belfast, Northern Ireland, is just such a study.

The general conception of reading in the United States is well summarized by Austin (3), and Robinson's (28) survey of provisions in America for children with reading difficulties adds that aspect to the total picture. The history of the teaching of reading, though not well documented in other countries, has been given careful attention in America. Most important is Nila Banton Smith's (30) study, but Staiger's (33) recent short article is an excellent introduction.

A fascinating investigation of the social psychology of the content of American children's readers has been reported by Klineberg (20) in his article "Life is Fun in a Smiling, Fair-skinned World," which should, as he points out, provide the basis for comparisons with the content of readers in other countries.

In the countries around the Baltic Sea, several descriptions of their reading have been published recently. Malmquist (24) has provided a characteristically clear and objective statement on provisions for children with reading difficulties in Sweden. Gjessing's (13) Norwegian report is focused on the concept of reading readiness. His study is one of those which takes one more into the third category of existing publications in the field of comparative reading because he does make some tentative comparisons between Norway and other countries. Kyöstiö (21) also makes provisional comparisons in his report of experiments in preschool reading in Finland.

Hildreth is another author who has made tentative comparisons with American reading. In her reports on reading in the Arabic, Armenian, and Greek languages, which she observed in her visits to relevant countries, her interest is in the grapheme-phoneme relations in these languages as compared with English. She writes, for

example, that "the spelling system in Arabic is strictly phonetic" (15) and that "Armenian children are lucky when it comes to learning to read, write, and spell because their language employs a phonetically consistent alphabet which unquestionably eases the learning task" (16). In Greece, she found that "with no spelling inconsistency as in English, there are no phonics problems, no tricky pronunciation rules to learn with their exceptions," so that, "young children catch the alphabetic principle and learn to use it for word recognition and spelling more quickly than with irregular English spelling" (17).

These examples provide only an introduction to the collection of articles on national reading characteristics, a collection which is needed to form the basis of the natural history phase of the development of the new scientific method of comparative reading research.

The future of comparative reading

The prospect for expanding this field of study seems quite bright if one judges by the amount of recent interest in cross-national reading investigations. Earlier, Smith's introduction to the First World Congress on Reading, Paris 1966, was quoted. Others have called for extension of this work in regard to research on specific problems. Most commonly, this interest appears to be focused on linguistic differences, but many other factors are amenable to real-life comparisons in the comparative reading laboratory which the schools of the different countries of the world comprise. Klineberg, for example, in the article referred to earlier, concludes with the proposal that his "analysis made of American readers be supplemented by a comparison with readers of other countries (France, the Soviet Union, Brazil, and Sweden) to determine what can be "covered from their experience."

On the other hand, it must be emphasized that the next phase in the development of scientific research in comparative reading will have many difficult problems of methodology. Kyöstiö's article mentions some of these. The variables to be controlled are legion, but the challenge they offer is, consequently, fascinating to the researcher. All existing studies can be criticized rather severely from the methodological point of view, although this flaw may seem understandable because these represent the first pioneer attempts in a field of enquiry which is still at a primitive level of development. One of these studies would escape Anderson's (2) general criticism of the state of research in comparative education which he wrote in 1961: "Too many writers are using armchair tools for shaping the larger supplies of facts into generalizations."

He went on to acknowledge:

We in comparative education have few data other than descriptive reports. Scholars always crave more and better data; this shortcoming is more acute in new fields. But comparative education is crippled especially by the almost total absence of information about the outcomes or products of educational systems.

He emphasized:

Sophisticated achievement-testing must be employed to supply this missing link in comparative education. Despite all the arguments asserting that such data are not comparable between societies, until we have such data we cannot go much beyond description.

All of Anderson's remarks apply with even greater force to the more-specific area of comparative reading. But limited progress is being made in this special field. Pidgeon's (26) comparison of attainments in reading comprehension, arithmetic, and non-verbal ability between children in Queensland, Australia, and in England and Wales is an important step forward in this method of research.

Husen's (18) *International Study of Achievement in Mathematics* represents the "gigantic leap forward" in the methodology of comparative education predicted earlier by Anderson. At present, because it was concerned with mathematics, it remains only tantalizing for us specialists in reading, but UNESCO now has begun a larger-scale comparison of reading achievements which will employ carefully selected objective measures of reading behavior in a range of different nations.

Although these developments are encouraging, they hardly scratch the surface of the rich deposits of knowledge which are available in this natural laboratory of comparative reading research. This potential is ripe for exploitation, and surely it will not be long before one sees the removal of the present barrier to progress, i.e., the lack of financial provision for comparative reading research.

In conclusion, it is requested that anyone who already has a special concern for comparative reading or anyone who would like to develop a special interest in cross-national, cross-cultural, or cross-linguistic reading research should write the writer at the University of London, Institute of Education. It may be possible to arrange special meetings or publications for people with this interest in the not-too-distant future.

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Cross-National Studies in Reading: The Relationship Between the Sound-Letter Correspondence in Language and Reading Achievement

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APPROXIMATELY a quarter of a century ago Leonard Bloomfield (1) wrote an important article on linguistics and reading. Although his article was ignored for many years, it has exerted an increasing influence on educators who have an interest in reading. While Bloomfield criticized both phonic and look-say methods of teaching reading, he was particularly critical of the latter method for its failure to take advantage of the essentially alphabetic nature of this writing system. In his article he explained that among those language communities having alphabetic writing systems some have nearly perfect correspondence between the sounds of the language and the letters used to represent them while other language communities have relatively imperfect writing systems. (From this point on the sound-symbol relationship will be referred to as "phoneme-grapheme" correspondence.) Bloomfield ranked various languages according to how perfect their writing systems were in degree of phoneme-grapheme correspondence. Among those languages with almost perfect correspondence between phonemes and graphemes were Finnish, Spanish, and Bohemian; those with relatively per-

fect phoneme-grapheme correspondence included Italian, Dutch, and German; and those with low phoneme-grapheme correspondence included English, French, and Greek. Although Bloomfield did not offer any hypothesis regarding the relationship between phoneme-grapheme correspondence in a language and ease of learning to read that language, many others have done so.

One of the first to suggest that reading difficulty might be related to phoneme-grapheme correspondence in the language was Clairborne (4). Clairborne suggested that reading failure among the Italian, Spanish, and German speaking people should be lower because of the high phoneme-grapheme correspondence in these languages. Maruyama (13) also suggested that it is more difficult to learn to read English and Danish than German, French, Swedish, and Norwegian. Hermann (7), in 1959 wrote that "The greater the divergence between pronunciation and written language . . . the more difficult it will be for the word blind (and for that matter the normal child) to acquire the art of reading and writing."

Is it not reasonable to assume that the Finnish language, with its high degree of phoneme-grapheme regularity, is easier to learn to read than is the English language, with its relatively low degree of phoneme-grapheme regularity. There is even some indirect support for this contention. Finland entered the 1950 period having one of the most literate, if indeed not the most literate, population in the world (14: 604). During the same period it had more bookshops per capita than any other country (14: 613). "... The Finnish nation can as a whole reckon its period of literacy in centuries. The fact that Finnish orthography has always been considerably easier than that of many other languages naturally also contributed to the spread of

literacy" (8: 3). In the period around 1950, when there were relatively few people in Finland who were illiterate though possessing the necessary mental abilities (18), the illiteracy rate in the United States was 3.2 percent. Although it is tempting to ascribe differences in illiteracy rates to differences in phoneme-grapheme regularity in languages, to do so would be to take too simplistic a view of the many factors which must be taken into account. For example, if literacy rates simply reflect degree of phoneme-grapheme correspondence, then the illiteracy rates in Spain and Mexico should be lower than that of the United States since English has lower phoneme-grapheme correspondence than Spanish. Instead one finds that in 1950 the illiteracy rate in Spain was approximately five times that of the United States, and in 1960 the illiteracy rate in Mexico was approximately eleven times that of the United States. There are numerous factors other than phoneme-grapheme correspondence which affect reading. To use one example, examine the percent of national income invested in education during the 1960's. Finland, with very high literacy, invested 7.6 percent of its national income in education. The United States, also with high literacy rates but lower than Finland's, invested 6.3 percent of its income in education. Mexico, with low literacy rates, invested 3.0 percent of its income in education; and Spain, also with low levels of literacy, invested only 1.5 percent of its national wealth in education. Thus, in some rough way, one can see that literacy seems to be affected more by investment in education than by degree of phoneme-grapheme regularity in the language. Another example which can be used to illustrate how factors other than phoneme-grapheme correspondence influence literacy rates can be drawn from Russia and Cuba (17). At the time of the Bolshevik

revolution in 1917, the Russian people were largely illiterate; yet by 1959, just 42 years later, illiteracy for the Russian people as a whole had dropped to 1.5 percent. This decrease was brought about largely as a result of a government policy to bring education to all the people. In Cuba, the story is even more dramatic. The Cuban government in 1961 engaged in an intensive one-year campaign to eradicate mass illiteracy. A huge task force of all literate Cubans from all walks of life was formed and instructed to teach reading to those who were illiterate. In 1961 illiteracy stood at nearly 18 percent. By 1962 the illiteracy rate dropped to 4 percent. Over 700,000 adults learned to read in this one year, so that today the literacy rate in Cuba is not far from that in the U. S. A. It is important to note that both the Russian and Cuban languages have higher phoneme-grapheme regularity than English, and so, should be easier to learn to read. Secondly, literacy rates expressed as percentages do not indicate actual performance levels. Two countries may have identical literacy rates, yet the actual level of reading achievement in one of the two countries may far surpass the other. For census purposes, to qualify as a literate adult, one must be able to read and write a simple statement about everyday life. Lest one chastise one's self regarding efforts to eliminate illiteracy in the United States, it is important to note that about 100 years ago 20 percent of this population was illiterate; yet at the time of the 1960 census, only 2.4 percent of the population was illiterate, and the bulk of these illiterates were primarily over the age of forty-five (19).

All that the foregoing facts and figures on illiteracy show is that regardless of the phoneme-grapheme regularity of a language, people generally do not learn to read unless they receive

instruction. A question of more fundamental value in terms of increasing knowledge of psychological variables which affect reading acquisition is, when children are given the benefit of instruction, are there differences in the percentage who might be categorized as "successful" in learning to read based upon the language in which instruction is given. Using Bloomfield's classifications, one might hypothesize that the Finnish language might have the fewest reading failures and the highest percentage in the successful category followed by German and, finally, English. The investigation of the influence of phoneme-grapheme correspondence on reading in a natural setting—i.e., comparing reading achievement among countries in which different languages are spoken—is similar to the studies done in classroom settings in which reading achievement is compared between children reading the traditional English orthography and children reading the modified orthography of the Initial Teaching Alphabet.

In the summer of 1967 the Office of International Programs at the University of Minnesota provided the means for the writer to investigate how reading is taught in different countries and the relationship between phoneme-grapheme correspondence in a language and success in learning to read. The countries in which most of the work was done were Finland and Germany. In each of these countries the writer visited professors and researchers in the field of reading at many of the leading universities. The following brief account should illustrate why it is so difficult to do cross-national comparisons of reading achievement.

Although Finland does have intelligence tests, these tests are not used as they are in the U. S., where tests are administered routinely at specified grade levels. In Finland the intelligence test is given at the discretion of the teacher or school official to selected students. Consequently, if one wanted to use in-

telligence test scores to determine grade-level expectancy in reading for a sample of students, intelligence tests would have to be administered. Another disquieting fact learned was that reading achievement tests specifically designed for the Finnish language and standardized for the Finnish school population had just recently been introduced and a large percentage of children in Finland had never been given the reading achievement tests. Since for a large percentage of children neither intelligence test scores nor reading achievement scores were available, it was impossible for anyone to assess with certainty what percentage of children in Finland could be considered to be reading successfully. One scholar, who had written reading texts for children, said that based upon his observations, by the fourth grade 60 percent of the children were reading at grade level, 20 percent were above, and 20 percent were below grade level.

In Germany the writer learned that the teacher considers a child's reading to be unsatisfactory if by the end of the first year of school he can read only the words introduced in his reading texts. For satisfactory performance the child is expected to be able to read independently a large number of new words which have not been taught in school. One well-known scholar estimated that reading failures in Germany number some 12 percent of the school population and cases of severe reading disability, which he referred to as "dyslexia," ranged from 2 to 5 percent. It is interesting to note that the reading failure rate in Germany approximates that found in the United States (2) and that found in England with i.t.a. (5), in which after two years of instruction 10 to 15 percent of the children had not yet transferred to the traditional orthography. (It should be noted that in certain areas of the United States, such as inner-city areas

and areas where English is spoken as a second language, surveys have shown that as many as 50 percent of the school population have reading difficulties (20).)

My study of reading at the international level illustrates some of the problems researchers encounter in attempting to compare achievement among nations. The probability is very low that one could find several countries where the same reading achievement test had been administered to the same school age population. If one were fortunate enough to encounter such a desirable situation, raw scores could be used for purposes of comparison. However, many schools systems do not record raw scores but prefer, instead, to record grade equivalents based on national norms. Direct comparison of grade-level norms among countries is meaningless because norms do not reflect absolute performance on a test but rather what is typical performance for each specified grade level within a country. Since the average level of academic achievement among nations may differ in terms of absolute performance, direct comparisons of achievement based on norms is a fallacious procedure. It seems apparent, therefore, that studies in comparative education, in which an objective is the assessment of educational productivity, require large-scale cooperative research activity with adequate funding.

In 1958 the governing board of the UNESCO Institute for Education agreed to provide partial support for a 12-nation pilot study of educational achievement (6). The sample was drawn from the 13-year-old age group because many of the students in this age group were nearing the end of their formal schooling, and their test scores would represent the educational productivity of that nation's educational system as a whole. Approximately 10,000 students participated in the

study with from 600 to 1000 children from each of the 12 participating countries. Background data on the children included birth date, sex, number of siblings, birth order, home language, years in school, and parental occupation and education. The tests administered included reading comprehension, mathematics, science, geography, and a test of nonverbal aptitude. The achievement test in reading consisted of five reading passages, each of which was followed by six or seven multiple-choice comprehension items. The tests were translated into the appropriate language for the country in which it was to be administered. Although the procedure called for the participating countries to select their samples from communities which were most representative of the national population, several countries selected samples which were not at all representative of the country as a whole. Consequently, the committee in charge of the pilot study did not believe that direct comparisons of reading achievement among participating countries would be valid. Although data permitting direct comparisons of achievement are missing, nevertheless, several interesting findings are provided in this study. A nonverbal aptitude test was given to all the children under the assumption that nonverbal aptitude is culture-free and, therefore, should show the least variability among nations. It was further assumed that reading achievement scores would be a sensitive measure reflecting cultural differences among the participating nations. Despite sampling biases among the countries, despite differences in methodology in teaching reading, despite differences in phoneme-grapheme regularity of the languages of the participating countries, the reading test showed only half as much country-to-country test score variation as did the presumably culture-free nonverbal aptitude test. Thorndike, who was one

of the directors of the project, concluded that ". . . the nearest thing we have to a culture-fair test may be a carefully translated reading test, and that level of reading ability is the feature with respect to which different educational programs are most nearly uniform." In the 12 nation study, with but one exception, boys surpassed girls in total achievement. The one exception in which girls surpassed boys in achievement was in the United States. Sex differences in achievement were interpreted by the authors as reflecting differences in educational opportunity and motivation within the educational system of the country in the sample. Thorndike also found that "An examination of results for the different tests shows that girls perform best, relatively speaking, on the reading test. . . . This pattern is a universal one, appearing in each of the 12 countries. We appear to have here a universal and quite stable sex characteristic."

One of the objectives of the UNESCO sponsored (6) pilot study of educational achievement was to determine the feasibility of doing larger and better-controlled studies of educational achievement. Earlier work with the pilot study pointed to the necessity of obtaining representative national samples, cooperation of school districts, adequate funding, good translations of tests, and competent statisticians. Despite the problems encountered with the pilot study, the researchers were convinced that a much-larger study comparing mathematics achievement in 12 countries could be successfully completed. Since the purpose of the study was not a desire to make gross comparisons of educational achievement among participating nations but to determine what input variables into an educational system seem to be related to educational productivity, the researchers gathered information on factors which might affect educational

productivity. They gathered information on school organization, teacher training, curriculum, school expenditure, technological level, and degree of urbanization. Fifty million pieces of information were collected from almost 133,000 students and 13,000 teachers in 5,000 schools. The findings have been reported in a two-volume book by Husén (9). Although the report has not produced a formula for relating mathematics achievement to input variables such as expenditure, class size, teaching method, etc., what has emerged are hypotheses relating some aspects of input to educational output.

The success of the comparative study of mathematics achievement has encouraged the research team to begin still another international investigation of achievement which will be carried out in 1970. R. L. Thorndike (16) has informed the writer that at the present time the project directors plan to include tests of reading achievement in the assessment, though this plan is subject to change. Thirteen countries will participate in the study. They include Belgium, Chile, England, Finland, India (one or two provinces), Iran, Italy, Netherlands, Poland, Scotland, Sweden, Thailand, and the United States. The countries were not selected but volunteered to participate, partly for historical reasons, since they are countries which have an expressed interest in comparative educational testing. Students of three age levels will be tested: 10-year-olds, 14-year-olds, and students in the final year of secondary education. Although Thorndike would prefer to have a younger age group included, apparently the exigencies of the total project prevent this. Again in this study, as in the study on mathematics achievement, information on a larger number of input variables will be collected. In general, the method of statistical analysis will be one of multiple and partial regression in which an attempt

will be made to tease out the influence of each input variable when it is freed of the effect of other confounding variables. While one of the objectives of the study is to determine the influence of the input variables on achievement, other focal points of interest are to determine the spread of reading comprehension scores within a country as well as the average score. Exactly how one would determine what percent of the population in each country could be termed "reading failures" has not been determined, but it is possible to set an arbitrary low score as a definition of "failure."

The 1970 assessment of reading achievement in 13 countries will undoubtedly be the largest and best-controlled study of this nature which has ever been done. It should provide some important clues about what input variables are related to success and failure in reading. Although the investigation of the relationship between phoneme-grapheme correspondence and reading achievement is not a major concern of the research team, this comparison can be made since for each of the three categories of alphabetic regularity set up by Bloomfield (1), there is at least one language represented in the list of participating nations. Since many people will attempt to draw conclusions about the phoneme-grapheme regularity of a language and reading achievement from the report of this study when it is made public, this might be an appropriate time to state some precautions. Although the testing of the students will be by age, students who are educationally retarded more than two grades behind the modal grade for age will probably not be tested. Since policies differ from country-to-country regarding grade-level promotion, achievement figures may be falsely inflated for countries following a policy of retaining students who do not meet grade-level requirements. The research team

is aware of this problem and will make some effort to determine the percent of students in each country who have been retained. The second problem is somewhat more serious, and no easy solution is immediately apparent. In Finland, where there is very high phoneme-grapheme correspondence, the typical method used to teach reading is what one would call the phonic method (14: 614). In the United States, where there is relatively low phoneme-grapheme correspondence, the typical method used to teach reading is what one would call the look-say, basal reader approach (3). Based upon a review and analysis of studies comparing look-say versus phonic methods of teaching reading, Chall (3: 108) concluded that on most measures of performance the phonic method produced superior results. In a carefully designed laboratory study, Jeffrey and Samuels (10) came to the same conclusion. In general, the phonic method provides the child with a basis for decoding the printed letters to sounds. In terms of research design, the problem which will be encountered in terms of trying to determine the relationship between phoneme-grapheme correspondence and reading achievement is one of confounding, that is, the difficulty experienced in attempting to measure the degree of association of each of the variables (phoneme-grapheme regularity or reading method) with reading achievement. If Finland should have higher reading achievement scores than the United States, will it be because of higher grapheme-phoneme regularity in its language, or because of its reading method, or because of an interaction between the two? There is evidence that some children profit most from instructional materials having one-to-one phoneme-grapheme correspondence only when they are given specific instruction in learning the sound value of the graphi-

emes (3: 121, 10, 15). Although in the example of Finland and the U.S.A. there is confounding between phoneme-grapheme correspondence and reading method, this may not necessarily be the case with all the countries represented in the sample. It would be valuable if data were collected on reading method in each of the countries. This information would then indicate the extent to which comparisons of reading achievement among countries differing in phoneme-grapheme correspondence were valid.

A most useful source of information which will come from an international assessment of reading is the percent of "severe reading failures" in each of the countries. If the percent of severe failures is approximately the same in each of the countries regardless of differences in phoneme-grapheme correspondence, reading method, and a host of other input variables, it would prove interesting to those who believe that some forms of reading failure may be innately determined. Lenneberg (11, 12), has presented evidence to support his contention that specific language disability—characterized by delayed speech onset, poor articulation, and marked reading and second language disability—in which general intelligence remains unaffected, appears to be inherited.

In conclusion, several points should be made: Cross-national studies relating input variables to educational productivity in reading have not been done before because of the resources required in human talent and funding; these studies are now being done and should suggest what input variables seem to be related to reading; though these studies should throw some light on the relationship between phoneme-grapheme correspondence and reading the findings will only be suggestive and not definitive; and lastly, better answers to the question of phoneme-

grapheme regularity and reading will have to come from laboratory investigations, such as the Silberman (15) and Jeffrey and Samuels (10) studies in which both reading method (e.g., analytic versus synthetic phonics) and phoneme-grapheme regularity are systematically varied in a factorial design.

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Identifying Major Problems in Reading

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WHAT HAPPENS, from a psychological point of view, when one reads a phonetic-based script is of prime importance for the teaching of reading. The script is a kind of code. The sounds are represented by symbols. Sequences of symbols are meant to evoke sequences of sounds which are then recognized by the reader as meaningful words. As the reader becomes more skilled, he relies less and less upon this sound-symbol code because he learns to recognize patterns of symbols as representing syllables and whole words. But the beginner has to start with the code itself, which consists of correspondences between individual symbols and sounds.

The use of any code is a two-stage process. First, the key to the code has to be known. This is the *encoding* stage, which for reading means the learning of the letter-sound associations. The child already has a speaking vocabulary. The words he hears and speaks are patterned sequences of

sounds. His task, at this encoding stage, is to learn to associate these constituent parts of words with the letter symbols.

The next stage is the *decoding* of the symbol sequences. He has to respond by a sound-sequence, a meaningful word, when presented with a sequence of symbols.

This concept of the reading process may, therefore, be viewed as consisting of two stages: 1) the working from the sound groupings to the symbol-groupings, that is, the learning of the code; and 2) then back from the symbols to the sounds that is, using the code. Many of the problems met can, in the opinion of the writer, be solved by a proper understanding of this two-stage process.

First look at what is involved in stage one, the associating of sounds and letters. To be useful at the subsequent decoding stage—that is, for actual reading—what have to be associated are the true sound as it is heard in a word and the symbol in its place within a seen word.

This simple fact highlights two mistakes which are often made in the teaching of reading by a phonic method. Before any letter-sound associations are formed, the child must know what is meant by *sounds*. He may never have thought of words as made up of sounds. This realization may come about intuitively or quite unconsciously; but until, at some level of his mental functioning, he can identify sounds as components of words, he cannot begin to form the elemental letter-sound associations. Teaching *the sounds of the letters* does not of itself bring this realization. Whether the child has this concept of a sound can be tested quite easily: ask him what he hears the same in *cow, cat, cap cup*. Many backward readers will just look blank:

The second mistake is to think that

one can take these sound-components of words and pronounce them apart from the word. The *c* in *cat* is not how the letter *c* in *cat* is pronounced. One should avoid teaching these so-called *sounds of the letters* in isolation. The child may learn them as a drill but not understand what they have to do with reading. The pairing of the letters with these isolated sounds give him a sort of bogus code, which has analogies with the true code but needs a lot of transformation before it can be applied. This is one of the chief sources of difficulty in fusing. The true code, to repeat, deals with the rapidly pronounced sound-units as heard in words.

If the child has been given a bogus code by being taught the isolated sounds of the letters and has not managed to pick up the true code by himself, he will not be able to carry out Stage Two, the decoding of the letter-sequences into words. The isolated sounds *c—a—t* cannot be fused into *cat*. What usually happens is that the real code has been learnt alongside the bogus code. Only the true encoding enables the child to read off a sound-sequence, as one can legitimately say, at the speed of thought. Even if he appears to fuse *c—a—t* into *cat* as a deliberate sounded-out procedure, the real stringing together of the sounds occurs alongside this as an almost instantaneous, computer-like process.

Reliance upon deliberate building-up as a means of teaching reading has, therefore, several drawbacks. Whereas most children spontaneously learn the true code, some do not get the idea at all. One has to help them, by carefully prepared learning experiences.

Reading off of sound sequences as words (one cannot emphasize it too much) is an unconscious process, occurring in fact too rapidly for conscious attention. It presupposes that

the original encoding, or learning of the letter-sound associations, has been so thorough that the decoding can take place without a hitch. A diagnostic examination of the type of poor reader, say of 10 or 11 years of age who cannot get beyond the grade II standard of reading, usually reveals that his encoding was never perfected. He may muddle *l* and *r*, *b* and *d*; or be uncertain of certain vowels. Consequently, the decoding halts or breaks down. This condition may occur even with the regular phonic letter-sound associations, and it is at this stage that the difficulties of the disabled reader mainly lie.

The next stage in the encoding-decoding process is that of learning to handle larger units. These are what the linguists call the sound-patterns of a language. The word *stand* is made up of two regularly recurring sound-combinations, *st* and *and* or possibly *sta* and *nd*, according to how each individual organizes his patterning. Learning these larger units involves in its turn an encoding phase, which follows as a natural extension of the simple encoding of the individual sounds into symbols. For the normal child it is a spontaneous, intuitive process which does not have to be taught explicitly.

This concept of patterning, combined with that of encoding and decoding, opens up quite a new approach to fusing. The writer has argued that fusing, as usually attempted, is an artificial process, rather like using a key that does not quite fit the lock. It is the biggest sticking point for the retarded reader. The answer is to take the process back to the stage when the patterns are encoded. In other words, one cuts out the whole process of fusing by showing the child how to encode into larger units. Theoretically, that sounds very nice, but how does one do it? Admittedly the answer was

hit upon as an intuitive shot in the dark, when the writer and his colleagues had almost despaired of teaching a group of adolescent nonreaders to fuse sounds into words.

This is the device used: it forms item No. 9—the Half-Moon cards—in the programed reading kit. These are actually the Giant Half-Moons for use with a group. The consonant and the vowel are shown as interlocked—fused, blended, if you like—but this represents the extension of the encoding process from single sounds to the sound-patterns which are characteristic of the language. The basic form of patterning consists of consonant-vowel combinations, *ba*, *ma*, *te*, and so on. One says, "We are going to make a word, *mat*, but first let us make *ma*." On the table are three or four of the beginning consonants. The vowels are in the holding frame, only two or three of them at first. The child takes the *m* and fits on the *a*. Then the teacher says, "Right, that's *ma*; now let us make it into *mat*." (Notice that the sounds are never isolated from the words.) The *t* is taken from the consonants laid out on the right side of the table. One cannot, of course, go through absolutely all consonant-vowel combinations. But enough are covered to implant firmly the *idea* of encoding by consonant-vowel patterns and then bringing in the closing consonant. Well, it worked! After using the Half Moons and playing the games which give practice in dealing with the consonant-vowel combinations the children just read off words. They did not have to go through the traditional building-up.

In many phonic-based languages there are a number of conventions: two or more letters occurring together stand for a sound which is different from each separately, such as *or*, *ing*, *ew*, *au*. These also are normally learnt intuitively. Even many teach-

ers of reading have made no conscious analysis of them. Ask any colleagues an alternative way of writing *sh*. Few will immediately be able to say *ti* (station). These conventions offer surprisingly little difficulty, especially if they are regular. There is no practical limit to the number of associations of which the human brain is capable. That is why having different letter-shapes for capital and small letters or printed and handwritten letters presents no great difficulty.

Even the ambiguous conventions are not so troublesome as might be thought. The human brain is computerized in a way that it can cope with variations. It stores the sensory information and matches it to the nearest fit or tries alternatives until it gets the answer. A child trying to read the word *b-e-a-d* will rapidly and unconsciously try the *ea* as a short *e* and as a long *ee*, and finding it makes sense as the latter says *bead*. If he has to read *b-r-e-a-d*, he does the same but chooses the short *e* vowel because it makes sense as *bread*.

The next stage in the process is reached when the recognition of letter-patterns is extended to whole words, such as is necessary for fluent reading.

In summary, learning to read a phonic-based script consists in the encoding and decoding, first, of single sound-letter associations, then of consonant-vowel groupings—the formation of what the writer has called phonic-sight habits—and, finally, the recognition of whole words. If one is to avoid the mistakes of those of an earlier generation who taught phonics as a conscious building-up process—which produced the reaction to sight-methods—one must help children to pick up the true code of sounds and sound-groupings as heard in words.

Two Essential Problems in Language Teaching

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THIS DISCUSSION DEALS WITH elementary training in reading and the teaching of language in grades three through seven. The selection was made from a wide range of alternatives, but in Denmark these two topics are main factors in the teaching of the mother tongue.

Historical background

By old tradition, children in the Scandinavian countries start school rather late. In Denmark, the average age for children starting in the first grade is seven years.

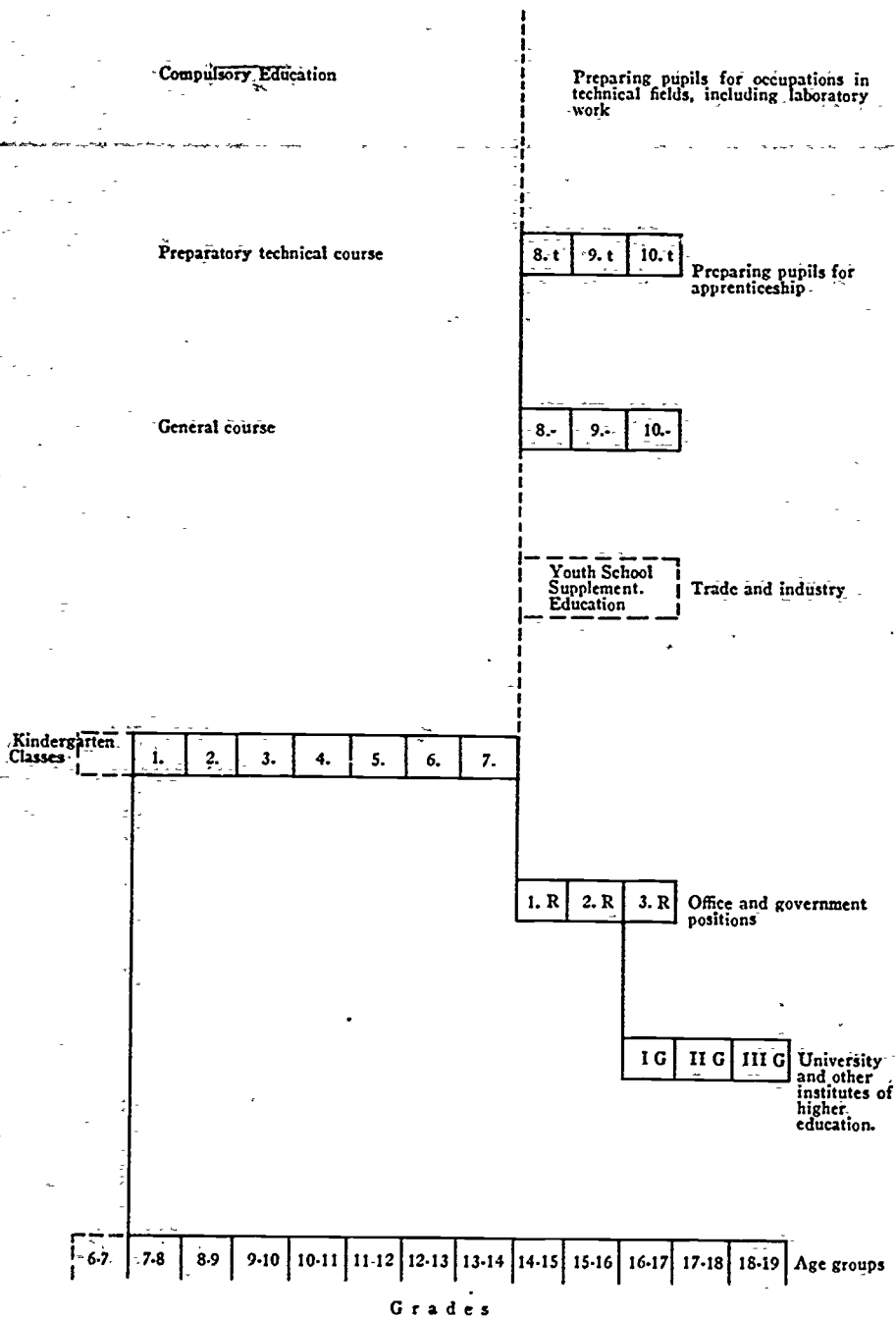
Something new is the introduction of kindergarten classes where attendance is on a voluntary basis, but these classes are mainly to be found in the larger towns only. In the kindergarten class the children receive no instruction in the traditional school subjects; children are not being trained in reading or writing, and all teaching is done by teachers specially trained for this kind of work. So even with the introduction of these classes, conventional schooling starts rather late.

Figure 1 will show the structure of the Danish public school; i.e., a seven-grade primary school whereafter grades eight through ten are divided into two streams, the final aims of which are indicated on the diagram.

There are at present many indications to show that the two streams to an increasing extent will be approaching each other, and within the next decade unstreaming may be a fact. Developments in this respect are, however, still very uncertain.

Education is compulsory until the age of 14, i.e., at the end of grade

Figure 1



seven; 41.6 percent continue in the Real section. Of the remaining, 81.5 percent continue through grade seven; 71.9 percent, through grade nine; while grade ten is still so new that it has an attendance of only 25.3 percent. The compulsory period is not very long; and especially when considering the weakest categories of pupils, it is altogether too short. The seriousness of the concrete figures, however, is modified to a certain extent by the well-developed voluntary system of adult education, which is based on very strong traditions. When taking a realistic view of the matter it must be admitted, however, that approximately 10.8 percent of the children receive no systematic schooling following the age of 14.

The above facts apply to the public school as a whole, and apart from this general outline it has become very difficult, following the developments that have taken place during the past decade, to give details of a universal nature. From being a rather uniform type of school where the pupils were working under practically equal conditions, within the framework of the respective teachers' good or bad qualifications—a framework which is, of course, bound to vary greatly—the system is now marked by wide differences from one school to the next.

Within certain municipalities extreme efforts have been made to provide the best possible outer framework for local education. This policy is being supported by practically everybody in the municipality irrespective of political conviction or social status. The result is an L.E.A. that may be ten or even twenty years ahead of the L.E.A.'s in the neighboring municipalities. Concurrently herewith, other schools seem to be almost systematically deprived of efficient teachers because of the complete indifference displayed by the municipal authorities.

This atmosphere at any rate amounts to stagnation, degenerating perhaps into actual deterioration whereby the situation may easily arise that when comparing two municipalities, one may be found to be as much as one or even one and a half generations ahead of the other.

This may be seen as one of the contributing factors to the establishment of private schools, generally rather small in size; but schools which, though few in number, are of significant importance from an educational point of view. Within the public school the situation has also to a large extent given rise to inspiring cooperation between the parents and the teachers.

Elementary instruction

During the past 10 or 15 years a typical aspect of elementary instruction is the fact that formal training in reading is being postponed to an increasingly late stage in the language instruction. This procedure does not mean omission of all systematic work in the elementary grades, but as an example it may be mentioned that the class as a whole is not expected to be read until at about the age of nine, i.e., during the first half of grade three.

Introduction of the teaching of traditional educational skills is being put off as long as possible. Thereafter, the teachers work rather intensively with the children for a comparatively brief period, at the end of which the results achieved are found to be at any rate not inferior to those formerly reached. The children have been left in peace and have had time to develop and mature. An added advantage is that one does not "lose" the weakest pupils. One makes haste slowly and, therefore, also finds time for creative work.

A subject of many aspects

In grade two, and even more so in grade one, classroom activities are di-

rected at a general training in language skills.

Great importance is attached to having the language instruction considered as one subject, comprising the spoken language, reading, the written language, and spelling. A few years ago the requirement was made for integration in language instruction.

There is a clearly defined pattern according to which one adheres to the following *sequence*:

1. First the children must be taught to *listen* to the language and to *comprehend* it while playing natural games—in principle, without any formalizing interference.
2. Concurrently with, and in continuation of this situation, children are taught to *speak* the language through the use of words and sentences.
3. Subsequently they are brought through the various stages of training in reading skills, all based on the same subject matter.
4. Finally, they are taught to use the language in written communications.

This procedure must in no way be taken so literally as to mean the non-existence of cooperation within the above four steps. *This is by no means the case.* From an educational point of view, however, it seems to be of positive interest first to train the child in comprehension of the language, then in talking it, and finally in reading it before he is introduced to any systematic program for the written language, covering written expression and spelling. At all stages there is a constant development of the comprehension ability, as well as to all other skills, but at each single stage the sequence followed is the same:

Comprehension → Speaking →
Reading → Writing.

This might be expressed by saying

that the pupils are not "only" expected to learn how to read and write but that the instruction should lead them to the point where they have a good command of the language in all its various forms of expression.

What method to use?

But precisely what method is followed in the teaching of reading? Within some educational circles, people still speak of pure reading methods—as is the case in Denmark. As a general rule, one here winds up by having to abandon the debate on methods in *elementary instruction* as being rather devoid of interest. The fact is the one is never fortunate enough to have classes that would lend themselves to the introduction of the, probably quite excellent, pure methods.

Instead of concentrating on pure methods, work has been in a more general direction, and actually it seems as if the children benefit from this.

A rather good background is being developed for the elementary instruction in Danish:

1. By the introduction of *divided classes*. This term means that the class comprising approximately 26-28 pupils is working in two groups of 13 or 14 pupils each for a maximum number of four lessons a week. So far the division of the class has been introduced to the first four grades only, but this one measure alone has given better results than many much more complicated methods.
2. By the fact that in some progressive municipalities this measure has been followed up insofar as grades one and two are concerned with the establishment of *half classes*, i.e., classes which are almost completely divided, with only a few collective lessons.
3. By making it possible for the teacher to choose from a universal

range of educational material and, what is even more important, by making ample material available. Here again one comes across wide differences when comparing the respective municipalities, but a *start* has been made; and if taking a retrospective view of only the past decade, a "revolution" within this field has unnoticeably taken place.

4. By supplementing the mentioned material by complete and systematic, but not dogmatic, instructions which will enable the teacher to meet the individual requirements of the largest possible proportion of the pupils.
5. By attaching increasing importance to advanced courses for the teachers and to their in-service training. First of all, separate courses in *special* education were arranged, e.g., a training program which produced a considerable number of excellent teachers in the fields of both *special* and *elementary instruction*. More important even from a numerical point of view are, however, the many in-service training programs, extending often over one to three days only and arranged by the L.E.A.'s, often during the working hours of the respective teachers but mainly *after* school hours in a number of municipalities.
6. Finally, the school psychologists are becoming tired of having to repair the defects arising from an unsatisfactory elementary education; increasing attention is, therefore, being paid to the general aspects of elementary education with good results.

The best method

Also in Denmark there have been people who claim to have invented the "best method," including i.a.—a system from year 1908 similar to the i.t.a. The debate on methods, however, has

lost its warlike aspect, a form of discussion that easily becomes tiresome. The general assumption, however, is that if the following requirements are complied with, then the pure and correct reading method becomes a thing of secondary importance only:

- that* the classes are kept sufficiently small (not more than 24-26 pupils) and are allowed to be divided into two groups during a certain number of lessons per week—preferably a larger number than at present and extending also upwards through more grades;
- that* these classes are conducted by a broadminded and efficient classroom teacher rather than having to get used to many different teachers;
- that* the parents accept and support such an arrangement;
- that* the children are supplied with ample and constructive material;
- that* the pupils are allowed to take their time while still working steadily; and
- that* in general practice, but not dogmatically so, the already-mentioned sequence to be followed in the language instruction is generally accepted.

It should be emphasized that the mentioned division of classes is not based on intelligence or social level or according to any other prefixed concept. The class is simply cut in half, e.g., in alphabetic order.

Language instruction in grades three through seven

How are the pupils occupied during lessons?

Unlike the favorable development witnessed in the elementary grades as well as in grades eight through ten, in the latter respect particularly within the modern stream, the situation at the intermediate stages poses some problems.

The language instruction is here dominated by the conventional formalized methods originally developed by the universities. It may be noticed how the very same teachers who had been instructing the class during the first two or three grades or who will be instructing the pupils in the last three grades fall back on a form of conventional instruction, which seldom is of any great interest to the pupils (not to the teachers themselves).

During the elementary grades the class is allowed to proceed slowly, and in the top grades there is a great deal of work to be done; but the pupils do not learn enough during those years when most of them actually are most school-minded, i.e., at the intermediate stages from 9-14 years. And by tradition there is so much to be attained at these class levels. Might it not, perhaps, be a good thing to be less ambitious when fixing the target to be reached and rather let the pupils work in a more adequate manner? One thing at least is certain: the situation is rather problematic and gives rise to the following question:

Is it possible to rationalize the teaching methods in respect of pupils between 9 and 14 years, with a view to increased efficiency?

Experience clearly shows that at these levels many aspects of the instruction are inadequate; at least they are not efficient enough to meet future requirements. One is faced with a community in a steady development, with different demands from those made previously, a community which experiences a radical change in structure from one decade to the next. It was quite characteristic that a couple of years ago, when the first survey was made of the work done in the classroom, the initial experiment was concentrated on these latter grades; for it seems quite obvious that during school hours the pupils have to work with a

hopeless conglomeration of obsolete and, to a large extent, useless subject matter. But one does not know how the pupils actually are occupied throughout the day.

"What have you learnt in school today? Dear little boy of mine," was a question that was brought up even before it was asked by Peter Seekers.

The pupils may be tested: 1) at the beginning of a certain period; 2) during this period—several times even, if testing is preferred to the more laborious task of teaching; and 3) at the end of the period. It is possible to evaluate their achievements. The progress made is, of course, known to the pupils themselves beforehand as well as to their parents and the teacher—but all the same!

One may interview the teachers concerning their efforts and methods—and the replies would form the basis for an interesting paper—but actually it would tell more of the teacher's own intentions than of the class activities.

One must visit the classroom to study every day activities, not to make efficient to such an extent as to rob the lessons of all sentiment and artistic feeling. No, quite the contrary. The aim is to find a basis for development of a systematic working plan, a plan that is concentrated on more active participation on the part of the pupils.

List of activities

The following is a list of activities which pupils may be concerned with in the language classes from grades three through seven. The list, which primarily has been made up on the basis of the actual situation ruling in respect to this subject, may seem rather brief, but it covers 100 percent—and even at that the group "Sundry Matters" is being little used.

1. Conversation between the teacher and the individual pupil or the class (not directly bearing on textbook matter, etc.)
2. The teacher talks to the class in its en-

- tirety, giving instructions, asking the pupils how far they got in the past lessons, and assigning new lessons
3. Teacher encourages pupils to enter into informal conversation among themselves
 4. Pupils read aloud to the class texts as well as free compositions on topics of their own selection chosen by themselves
 5. Pupils retell stories and give an oral account of what they have read, seen, or heard
 6. Free oral rendition
 7. Dramatization
 8. Oral reporting
 9. Teacher reads stories aloud to the class
 10. Subdivision of sentences or division of words in support of the reading effort
 11. Individual pupils read aloud
 12. Choral reading and choral spelling
 13. Teacher asks questions, possibly accompanied by comments, to guide the pupils on what they have read, seen, or heard
 14. Silent reading, normally of books of pupil's own choice, followed by check-up
 15. Oral book review, conversation, and discussion on the contents, structure, and plot of a book, an editorial, or other text matter
 16. Silent reading for the purpose of developing study technique and reading habits as well as a critical attitude
 17. Formal exercises on study technique
 18. Independent reading by pupils in class without any kind of subsequent check-up
 19. Pure copywork
 20. Copywork, including problem solution
 21. Interaction between spoken and written language
 22. Dictation of text matter
 23. Dictation of words
 24. Self-dictation.
 25. Dictation of matter based on words which the pupils have had difficulties with, spelling
 26. Class participation in review and correction of dictation papers
 27. Class participation in correction of other written papers
 28. Individual participation (by one or more pupils) in the correction of papers
 29. Alphabetic exercises
 30. Inflection
 31. Observation and formation of words
 32. Spelling list drills
 33. Written answers to questions
 34. Précis writing
 35. The class writes a composition on a topic read out to them by the teacher
 36. Composition based on silent reading of topic
 37. Written reports and other written exercises of a similar nature
 38. Essay on a picture, a series of pictures, or on two contrasting pictures
 39. Paper on topic selected by each pupil and perhaps illustrated by him
 40. Work evaluated and criticized by teacher and, perhaps, also by the class
 41. Pupils read their own free compositions aloud to the class for comments, perhaps accompanied by criticism, by teacher and other pupils
 42. Training in the use of a dictionary or a list of words serving as a dictionary
 43. Pupils express themselves freely in writing and construct sentences on basis of certain words or a certain topic
 44. Writing on blackboard on basis of certain words or a certain topic
 45. The use of a period
 46. Explanation of the importance of the different parts of speech prior to practicing the use of a comma
 47. Exercises on the use of a comma, including the marking of the subject with an "x" and the sentence verb with an "o"
 48. A more formal analysis of the sentence
 49. Exercises on the use of commas to indicate pauses
 50. The filling out of forms such as dispatch notes, money orders, postal orders, etc.
 51. Writing of private letters
 52. Applications, replies to advertisements, etc.
 53. Observation of linguistic and grammatical phenomena relating to spelling
 54. Observation of linguistic and grammatical phenomena relating to the style of expression
 55. Varying concepts and different methods of divisions which are of interest only from a purely theoretical point of view or as a matter of convention
 56. Deductions made from certain elementary grammatical rules
 57. "Formal exercises, paradigmatic drill" and other grammatical exercises of a purely formal nature
 58. Recording and filing
 59. Exercises on methods of libraries and the use of the service offered there
 60. Reading room assignments in support of the teaching of literature
 61. Essays, the writing of which requires reference to books available in the reading room
 62. Conversation on and direct utilization of the service offered by the school library, including the borrowing of books
 63. Conversation on and encouragement of pupils' reading books
 64. Formal writing exercises in the air, in the book, or on the blackboard, including the designing of forms, etc., for completion
 65. Fair copy
 66. Roll call, announcements from the school
 67. Return of papers, distribution of material, collection of material and papers, pupils wandering back and forth from their seats, up to the teacher, and so on: confusion
 68. Reproof, admonitions, etc.
 69. Social functions, including visits to school nurse, school dentist, etc.
 70. The functions of the classroom teacher
 71. Singing
 72. Drawing and coloring

73. Phonetics and formal correction of errors made in spoken language
74. Pupils waiting for teacher to attend to their respective problems
75. Sundry matters
76. Before teacher and pupils meet or before pupils start working

This is not the place for a review of the survey forming the basis for the preceding list, nor of the very first results. It should be pointed out, however, that of a total of 7,585 minutes spent on observation of class activities, the ten main activities are indicated (Figure 2).

siderable portion of which must be added to the above 14.0 percent when evaluating the performance.

Considering the fact that out of the ten most-frequent activities the last four (Nos. 67, 76, 74, and 75) or a total of 19.4 percent are without constructive interest as far as the actual subject matter or social aspects are concerned; one might be inclined to hope that some error has been made in the analysis.

This, however, is not the case.

These trends have been selected

Figure 2

Activity No.	Content of Activity	Time Consumption	
		In minutes	In %
11	Individual pupils read aloud	564	7.5%
9	Teacher reads stories aloud to class	446	5.9%
67	Return of papers, distribution of material, collection of material and papers, pupils wandering back and forth from their seats, up to the teacher, and so on—confusion.	422	5.7%
76	Before teacher and pupils meet or before pupils start working.	419	5.6%
32	Spelling list drills	367	4.8%
13	Teacher asks questions, possibly accompanied by comments to guide the pupils on what they have read, seen, or heard.	346	4.6%
74	Pupils waiting	312	4.1%
75	Sundry matters	300	4.0%
2	The teacher talks to the class in its entirety, giving instructions, asking the pupils how far they got in the past lessons, and assigning new lessons.	267	3.5%
1	Conversation between the teacher and the individual pupil or the class (not directly bearing on textbook matter, etc.)	266	3.5%

In one activity only (No. 11) out of the ten, it was *the pupil* who was the active party—the activity being that of reading aloud, a pursuit which is rather meaningless at any rate insofar as grades five, six, and seven are concerned. Total percentage is 7.5 percent.

In the activities Nos. 9, 13, and 2, *only the teacher* was active: Total percentage is 14.0 percent, and in a further two cases (Nos. 32 and 1) it was the teacher who took the initiative, guiding and directing the pupils. Total percentage is 8.3 percent, a con-

from a comprehensive volume of study material to emphasize the need for a rationalization of the educational methods used in the teaching of the native tongue at the class levels dealt with.

Identifying Major Problems in Reading in England

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A PROBLEM IN ANY SITUATION is only identified when someone with a defi-

nite aim in mind is conscious of failure to achieve this aim. Without conscious aims and the realization of failure to attain them, no problem is considered to exist. The identification of reading problems depends initially on where and when they are perceived, although questions of who identifies the problems, what their aims are, and how the assessments are carried out, follow closely on the heels of *where* and *when*.

It is clear that different countries, at different times in their histories, are identifying problems of literacy at very different levels. For instance, one could contrast the situation in any of the emerging countries of Africa or Asia, where current aims may be limited to teaching a specified proportion of the population to sign their own names and read a few simple lines of print, with the situation in a country in which compulsory schooling for every child has been in force for many years and where current aims may be emphasizing efficient reading habits for college and university students, business executives, or scientists. This paper is concerned solely with the identification of reading problems in England at the present time.

Problems identified as important in England

The identification of reading problems may be concerned with either the actual standards attained, at a fairly superficial level, or with the detailed diagnosis of individual failures and difficulties. In England during the past few decades, interest has centered on the first level in the form of preliminary surveys of reading attainment, narrowly defined, rather than on more detailed, individual, diagnostic assessments. Attempts have been made to discover the number of children who have reached or failed to reach certain modest levels of attainment. The two levels most commonly recognized are

those used by the Ministry of Education (5); namely, reading ages of seven and nine. A person is described as *illiterate* if his reading age is below seven and *semi-literate* if it is between seven and nine. Those achieving standards higher than a reading age of nine are rarely identified as having problems requiring specific assistance. (Reading ages of seven and nine in England may be roughly equated to the average performance of American children at the end of the first and third grades, respectively.)

In addition to this major concern with the identification of minimal reading standards, the writer can perceive three additional areas of current interest in particular reading problems, and they, too, relate to children who experience difficulties with beginning reading. These three problems relate to non-English-speaking immigrants, young children from culturally deprived homes whose levels of language development are low, and dyslexic children.

One further strand in the present pattern of reading investigations relates to the various ways in which teachers may help children to begin to read; for example, experiments with the use of I.T.A., color codes, and new sets of reading books and apparatus. The writer does not, however, consider most investigations of this nature to be basically concerned with the identification of reading problems but rather as experiments with possible cures for problems which have not always been accurately diagnosed.

The "who," "what" and "how" of identification

Functional identification at different levels. The preceding conception of the identification of reading problems is one which the writer considers to be inadequate. Some light may be thrown on its development if it is examined in the light of three questions: *Who*

has been responsible for the identification? *What* were their aims? *How* was the identification undertaken? The operation of these three factors may conveniently be considered at national, local, school, and individual levels.

1. National level

National surveys of reading attainment have sometimes been undertaken by independent institutions such as The National Foundation for Educational Research (N.F.E.R.) or departments of universities. At a government level, the Department of Education and Science, between 1948 and 1964, arranged for five surveys of the reading ability of samples of 11- and 15-year-olds to be undertaken. The results were published in three pamphlets: Ministry of Education (5, 6) and Department of Education and Science (3).

The test selected on each occasion, a single group test in the form of sentence completion items, clearly indicated that the aims of the surveys were to assess overall standards and note trends rather than to diagnose individual problems in order to suggest or arrange for remedies. The first pamphlet (1950) does acknowledge the existence of reading problems in certain older pupils and adults and makes a few suggestions for dealing with them (5). In contrast, the whole tone of the final pamphlet (1966) exudes such pleasure and confidence in the discovery that there has been "remarkable progress" in reading standards between 1948 and 1964 and that the fact that approximately 20 percent of 11-year-olds have reading ages of less than nine years and of this 20 percent almost half have reading ages less than eight years, is not noted as representing a reading problem (3). (In fact, the actual standards reached are not stated, the results being given in the form of percentiles as raw scores on an

unpublished test. The foregoing reading ages have been estimated from other information given in the pamphlet.)

2. Local level

A proportion of local education authorities arrange for every child within the authority to be given a reading test on a few occasions during his six years in the primary school. The test is usually a group test of reading comprehension, selected by an educational psychologist and administered by class teachers. Such reading surveys usually form part of a continuous assessment of each child's progress in the primary school, an assessment which influences secondary school selection at the age of 11+.

Certain local education authorities, particularly those in closely populated areas, arrange annual surveys of seven-, eight-, or nine-year olds, for the purpose of selecting children in need of remedial education. Such testing, however, does not necessarily include the whole age group, as headteachers may have been asked to make preliminary screenings by listing a small proportion of the most backward readers in the age group as requiring testing. Testing for the selection of remedial cases is usually carried out by remedial teachers and may include the use of group tests of both reading and intelligence, followed by individual graded word reading tests. Not all local authorities, however, make provision for remedial work in reading; and, even when provision is made, the number of remedial teachers can only rarely be considered sufficient to meet the needs. This situation partially explains why the identification of reading problems in primary schools is not increased and why little has been undertaken in secondary schools.

It is exceptional for a local education authority to be involved in such extensive surveys as those undertaken

in Kent by Morris (7, 8), in which children's standards and progress in reading were assessed by means of a battery of group and individual reading tests and the results were examined in relation to children's attributes, home circumstances, and school conditions.

3. School level

The writer considers it to be the exception rather than the rule for teachers in England to use standardized reading tests as the means of identifying children's reading problems. The majority of infant teachers refrain from using such tests at all, except in certain cases with children ready for promotion to junior classes. In secondary schools, tests of reading ability, where used, are generally confined to backward pupils. Thus, teachers utilizing reading tests are to be found mainly in junior classes, that is with children aged 7-11, the results being used by teachers to help in the grouping of children for reading instruction and the choice of appropriate reading books.

The most commonly used tests are individually administered oral tests, such as Burt's (1) or Schonell's Test R.1. (11), which are both graded word reading tests, or Watt's sentence reading test (14). Although such tests are time-consuming, they tend to be used in preference to group tests, most of which are expendable and so constitute a recurring expense. Expendable group tests employed include the N.F.E.R.'s (9) and Southgate's (12, 13); Schonell's Tests R.3. and R.4. (11), being nonexpendable group tests, are sometimes used in preference. The results obtained from both the individual tests and group tests reflect the purposes of the teachers who administer them in that they are merely indicative of general levels of attainment.

4. Individual level

What of the identification of individual reading problems? Teachers of infant classes in England tend to assess children's reading standards, progress, and problems intuitively and functionally. First, a teacher judges by the child's speech development, interest, and general attitudes when he is ready to begin to read, tests of reading readiness being practically unknown in England. Then the teacher adjusts the grading of processes and the pace of learning according to her observations of how children, who are generally working either in small groups or individually, respond to the earliest instruction. As speaking, reading, and writing activities often spread informally over much of the infants' day, the teacher has many opportunities for noting the children's interest in, recognition of, and use of words. Later, the ability of a child to read a simple book is taken as an indication that he is ready to proceed to a slightly more difficult one, and so on.

Diagnostic testing in English schools can be said to be virtually nonexistent. Few diagnostic tests have even been published in this country; the two exceptions which spring to mind are those of Schonell (11) and Daniels and Diack (2). Yet, most infant teachers are extremely concerned to discover and help children with their individual reading problems; but, just as most infants learn to read by reading, rather than as the result of much direct instruction, so do teachers attempt to diagnose the children's problems by listening to them reading aloud and noting when and how they fail. Clearly this method of individual assessment is more successful when made by able and experienced teachers than when it is undertaken by less-able or inexperienced teachers.

Once a child has reached a level of attainment equivalent to a reading age of approximately seven, there is a

tendency for teachers to consider that his reading ability will increase automatically, provided he is supplied with progressively harder reading books. In fact, after about the age of nine, reading lessons rarely figure on the school timetable except for noticeably backward readers. Even so, because most teachers believe in the importance of reading, the whole ethos of primary schools is geared to the expectation that children will learn to read. Accordingly, within the framework of the rather informal primary classes, most children do learn to read, aided by a good deal of almost undetected identification of children's reading problems carried out by teachers.

Remedial teachers, working with groups of failing readers, sometimes do more than merely administer a group reading test or graded word reading test. They may use the diagnostic tests already mentioned, but it is more likely that they will employ ad hoc methods of their own to discover the extent of children's knowledge of phonics so that omissions in this area can be remedied.

A very small proportion of children who are clearly failing to read, for reasons other than low intelligence and particularly if they exhibit marked behavior problems, is referred to child guidance clinics. Children suspected of being dyslexic are also referred to child guidance clinics or to The World Blind Centre in London. Such referrals are more often made by medical officers of health than by teachers, most of whom are rather skeptical about the concept of dyslexia. A child guidance team may consist of an educational psychologist, a psychiatrist, a social worker, and remedial teachers. Each child referred is likely to be given individual reading tests and, possibly, a little diagnostic testing, although the investigation generally concentrates on the discovery of the intellectual, physical, social, and emotional

factors related to the backwardness rather than on an identification of the exact areas in which the child is failing to read and the manner in which he is failing.

Identification by researchers. In addition to the identification of reading problems for primarily functional purposes, certain investigations into reading problems are also undertaken by research workers. The researchers are generally attached to universities, colleges of education, local education authorities, or such institutions as the N.F.E.R. or the Schools Council; and their investigations range from national to individual levels.

As there is no central institution with responsibility for guiding, coordinating, and disseminating the results of investigations into reading problems in England, it is almost impossible to draw any broad picture of the research being undertaken in this field. The N.F.E.R. (10), in its most recent list of current researches in education, notes 29 on-going pieces of research in 1961-3 directly concerned with reading and a further few connected with it. Unfortunately, as the information regarding these researches was forwarded voluntarily to the N.F.E.R., there is no means of knowing whether the list is representative of all reading research then in progress or what percentage of such research it represents.

Thus, all that can be stated about research into the identification of reading problems in England is that it is not in any way coordinated; that it more often takes the form of discrete, short-term pieces of individual research than of long-term team projects; that it leans heavily in the direction of the problems of younger and backward pupils; and that the shortage of reading experts, combined with the paucity of financial resources available for reading research, results in the quantity of such work being totally inadequate and the quality, sometimes so.

The current climate of educational thought in England

The extent and quality of the identification of reading problems are closely related to the climate of educational thought in a country at any given time. In the writer's view, the current climate of educational thought in England, is such that reading is accorded only a very low priority. Reading, as a subject, lacks status; in fact, it is rarely rated as a subject, either alone or as part of the broader subject of literacy. For instance, there is not one university in England which has a department specializing in reading or which offers it as a subject of study. Neither do colleges of education, responsible for the training of teachers, have departments of reading. In these circumstances, it is not surprising that it is usually only teachers of infants and of the slowest groups of older children who mainly show concern about their pupils' reading problems and that teachers and other educationists are rarely heard to mention the reading progress or problems of average and above-average pupils aged from approximately 8 to 18 years.

Why is the teaching of reading not held in higher esteem? In the first place, teaching children to read has traditionally been assumed to be the responsibility of infant teachers, although within the past two decades this responsibility has gradually been deemed to extend to remedial teachers and to teachers of backward, older children. Secondly, in practice, an implicit assumption has unfortunately developed to the effect that teachers may be ranked in importance according to the ages and intelligence of the children they teach; those counted of the least importance being teachers of young infants and dull, older pupils. Consequently, teachers of reading are not rated nearly so highly, as, for example, teachers of mathematics who

might be working in secondary schools, colleges, or universities.

Even in the field of primary education there appears to be a declining interest in reading. Two illustrations of the low priority accorded this subject are represented by the Department of Education and Science's pamphlet (3), already mentioned, and the recent Plowden Report (4). The latter, a full-scale governmental report on primary education in all its aspects, runs to a volume of some 500 pages, excluding appendices, of which five deal specifically with reading. While it would be inappropriate to take the ratio of 5 to 500 pages too seriously, it does, nevertheless, give some indication that the teaching of reading in primary schools is not rated as a high priority.

The writer's observations in primary schools confirm this impression. Especially in the so-called "progressive" infant classes, one notes a decrease in the acceptance of the importance of learning to read. The current tide of interest in primary schools is in broadening the curriculum, with an emphasis on the integration of subjects rather than their segregation. This line of development, with its insistence on heuristic methods of learning, could well have been accompanied by an increased awareness of the importance of reading as a vital tool for individual discoveries and development, but in the writer's view this has not been the case. On the contrary, there is an increasing emphasis on mathematics and science in preference to reading. Additionally, in certain primary schools, there appears to be a tendency for learning to speak French to be given greater emphasis than learning to speak and read English.

In contrast to the foregoing general pattern of educational thought, in which reading forms but a minuscule segment, there exists a minority group consisting mainly of primary school teachers and remedial teachers but in-

cluding also a few reading experts, educational psychologists, and lecturers who are dedicated to the identification, prevention, and cure of reading problems. These prescient few are, it is feared, at present swimming against the main tide.

Conclusions

People currently concerned with the identification, on a large scale, of major reading problems in England are too few in number and usually lack adequate training for the task. In addition, the tests available for identifying reading problems are insufficient in both quantity and scope, representing extremely blunt instruments for the task. Nevertheless, within primary classes and remedial groups, a considerable amount of intuitive assessment of children's individual reading problems is undertaken by teachers.

However, the current climate of educational thought does not favor an increased emphasis on the teaching of reading nor a broadening of the scope of the subject by an extension of aims. The aims at present are too narrowly defined, at too low a level. Consequently, the identification of reading problems is related to an aim represented by the attainment of a reading ability equivalent to that of an average child of nine. The result is that many children and adults who fail to reach their potential level of reading skill are not identified as having reading problems; consequently, a great deal of under-functioning remains undetected.

The identification of reading problems represents an important initial step in the process of raising reading standards. My conclusions are that the implementation of the following suggestions would contribute towards the attainment of this aim:

1. An extension of the meaning of the term reading with an acceptance of it as a continuous developmental

process made up of many sub-skills and extending from infancy to adulthood.

2. A realization that in most cases these skills are unlikely to develop to their fullest extent without some direct guidance and tuition.
3. A belief that the teaching of reading and, consequently, the identification of reading problems is the concern of all teachers in all educational establishments.
4. Plans for all teachers in training to receive some training in the teaching and testing of reading.
5. An increase in the number of reading specialists who are qualified to diagnose reading difficulties, advise on preventive as well as remedial measures, and carry out remedial teaching.
6. The development of reading tests, including diagnostic tests, based on a broader conception of reading abilities and more closely equated to functional reading.
7. The setting up of institutions designed to coordinate and carry out research, publish the results, train specialists, and act in an advisory capacity with regard to questions of reading and the other language arts.

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Initial Teaching Orthographies*

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LOGICALLY, IT IS OBVIOUS that both reading and writing, and the teaching and learning of both, must be profoundly affected by the characteristics of the orthography; and historically this connection has been recognized for more than four centuries. John Hart, one of the earliest spelling reformers, writing in 1554 and again in 1570, entitled his publication "A Method of Comfortable Beginning for all Unlearned Whereby They May Bee Taught to Read;" and William Bullokar, who in 1580 published about four books in his "Amended" spelling, made the point that for "easy conference" the new orthography must not differ too much from the old. Translating those two statements into modern terminology of initial teaching

media and compatibility brings them right down to date.

Ten years ago the title of this paper, if it were understood at all, would not have attracted a corporal's guard. Its timeliness is directly due to the conspicuous success of Sir James Pitman's Initial Teaching Alphabet, i.t.a. It is not the purpose here to discuss that success, either pro or con. At the Fourth International i.t.a. Conference at Montreal last summer, the writer presented a paper "i.t.a.—Not spelling reform, but child and parent of spelling reform" (2), which reviewed briefly the background of each and their interrelations. The writer will not attempt to cover that ground again. The purpose here is to examine the criteria for a phonemic notation for English for general use and to point out the most significant differences involved in adapting such a notation to the particular purposes of an initial teaching orthography.

Granted, on the basis of a century and a quarter of experience both in this country and Great Britain, the use of a phonemic notation as an initial teaching medium has, to say the least, an important contribution to make to education. The purpose here is to examine the resources available for creating such a notation, the qualities to be sought, the pitfalls to be avoided, and the principles which should guide the final synthesis and application of such a code. If the writer may seem to speak with more assurance than the data he has time to present warrants, he can only plead that 70 years of writing English phonemically (in shorthand) and nearly 50 years of active concern with the problems of spelling reform, including various items of research, have given him a more than ordinary basis for judgment.

The problem may be broken down into an examination of sounds and symbols and the principles which should govern the assignment of sym-

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bolds to sounds, including the influence of the particular purpose to be achieved.

Sounds

In the choice of sounds to be distinguished, the twin dangers are sophistication and ambiguity. Talk of phonemes and their allophones and morphemes and allomorphs is for the linguistic scholar, not the teacher or student. An initial teaching orthography should be the simplest in form and substance that will achieve its purpose: Phonemic rather than phonetic; making all those distinctions and only those distinctions which are semantically significant; and making only those distinctions readily recognizable by the average, untrained ear. Incidentally, it should be broad enough to absorb the most important regional differences—a problem which will be discussed later.

Specifically, consider the 40 sounds distinguished by Pitmanic Shorthand, commonly classed as 24 consonants, 12 vowels, and 4 diphthongs and disregarding such sophistications as whether the vowel sounds of *bait* or *boat* are, in fact, diphthongs, or whether the "vowel" sounds of *youth* and *few* are different or the same, and if the same, whether they are both consonant plus vowel or both true diphthongs. These 40 sounds are the only phonemic basis for writing English which has been proved in practical experience by millions of writers for more than a century. If one subtracts from the 44 characters of i.t.a., four characters—namely, *c* (an alternate for /k/); the reversed *z* (an alternate for /z/); the *wh* ligature (a single character for the consonant cluster /hw/); and the modified *r* (which merely signals that the preceding vowel is to be pronounced as *schwa*)—one has remaining this basic 40-sound structure. To these 40 phonemes must be added some provision

for *schwa*, which in shorthand writing is usually disregarded or omitted but which must be recognized and provided for by some means in longhand or print. This phonemic basis is the soundest (no pun intended) foundation for an initial teaching orthography. Possible modifications to meet particular purposes will be discussed later.

To maintain uniformity of symbolization in the face of regional differences in pronunciation, this basic code should maintain distinctions which a large number of cultivated speakers do make, even though another large number of cultivated speakers do not make them:

Writing post-vocalic /r/, which "r-keepers" pronounce, but which "r-droppers" omit (as in *far*), or reduce to *schwa* (as in *near*).

Writing *wh* (for /hw/), although a substantial number of speakers, especially southern British, do not distinguish it from /w/.

Distinguishing the vowel of *father* and *calm* from the vowel of *both*er and *comma*, as in most British pronunciation, although general American pronunciation does not make this distinction. This has the added advantage that (except before *r*) it follows quite closely the r.o. spellings with *a* and *o* respectively.

Uniformity in symbolizing lesser divergencies will be greatly facilitated by the tendency of each region to attach its own values to the symbols, especially for the vowel sounds. For a textbook or dictionary key to pronunciation, to be read rather than written, three ambivalent symbols will further facilitate this; more particularly:

For the vowel of *ask*, *bath*, *aunt*, which varies regionally but also unpredictably between the vowels of *cam* and *calm*, with the former more usual in the United States. For the vowel of *air*, *care*, *their*, which varies regionally between the vowels of *bat*, *bet*, or *bait*; use of the latter, as in Pitman short-

hand, causing the least confusion. For the high unstressed vowel, sometimes called schwi, which combines all of the shortness of *i* in *bit* with much of the closeness of *ee* in *beet*; heard in the last vowel of *any*, the first vowel of *believe*.

Symbols

The symbols for an initial teaching orthography may be derived from either of two sources:

Standardizing the Roman alphabet, by assigning a single sound to each single letter and to each digraph selected to represent those sounds for which the available single letters do not suffice, keeping strictly within the resources of the universally available Roman alphabet—as exemplified by WES.

Supplementing the Roman alphabet, by assigning to each of the 23 useful letters (exclusive of *c*, *q*, and *x*) a single invariable value and creating some 17 or more new symbols, as exemplified by i.t.a.

A third theoretically possible source is *supplanting* the Roman alphabet by creating and making available on typewriters and composing machines throughout the world some 41 wholly new characters, quite independent of the Roman alphabet; as specified by Shaw for his Proposed British Alphabet (10). This work is an interesting philosophic speculation, but completely unrealistic in that it eliminates the indispensable factor of "self-reading" compatibility (see following).

Assignment of symbols to sounds

An initial teaching orthography should have, so far as practicable, only one symbol for each sound and should regard, so far as possible, the predominant t.o. spellings of sounds. This aspect is important primarily for writing. Conversely, it should have, so far as practicable, only one sound for each symbol and should regard, so far as possible, the predominant t.o. pronun-

ciations of the symbols. This aspect is important primarily for reading.

Note that these two limitations are not just inverted statements of the same fact. Thus, the predominant spellings of the name sounds of *A*, *E*, and *U* are the letters *a*, *e*, *u*, but the predominant pronunciations of the letters *a*, *e*, *u* are as in *bāt*, *bēt*, *būt*, respectively. Similarly, the commonest spelling of the phoneme /z/ is the letter *s*, but the commonest pronunciation of the letter *s* is /s/. It is the ignoring of this second aspect which completely invalidates the data of Lee's 1957 study "Is The Irregularity With Which English Is Spelled An Important Cause of Reading Difficulty?" (6).

In applying these criteria, a successful initial teaching orthography must achieve a substantially "self-reading" degree of compatibility with t.o.; that is, a degree of similarity to the words and graphemes of t.o. such that the notation may be immediately readable by those familiar only with t.o. and that t.o. may be readable with little further study by those who have mastered the phonemic notation. It should achieve this goal, of course, with as few rules or exceptions, alternative spellings or ambiguous pronunciations as possible. Unfortunately, however, once the basic 40-sounds, 40-symbols code has been determined, all further gains in compatibility must come from concessions from strictly phonemic symbolization, with a corresponding departure from complete simplicity. *This equation between simplicity and compatibility is the final, most searching test of the validity of a phonemic initial teaching orthography.*

It is in striking this balance between simplicity and compatibility that the chief differences between a spelling-reform notation and an initial teaching orthography appear. A spelling-reform notation, to be written as well as

read by the general public, must emphasize maximum simplicity; that is, a minimum of rules or exceptions or alternatives, even at some expense of compatibility. On the other hand, while almost any reasonably phonemic notation, regardless of idiosyncrasies of symbolization, may be learned far more easily than t.o., an initial teaching orthography stands or falls on the ease of transition to reading and writing t.o. Considerably greater emphasis on compatibility, through alternative symbolizations, rules, or exceptions (provided that these affect a significant proportion of words), is therefore warranted; for these alternatives are, in effect, a preparatory phase of the transition, and mistakes due to wrong choice of alternatives during the temporary period of writing the initial teaching orthography are of no lasting importance.

To guide these crucial decisions, both in setting up and in applying the code, objective data on the relative frequency, both of phonemes and graphemes, are greatly needed. So far as writing—more particularly learning to spell—is concerned, data on a dictionary basis (unweighted for the relative frequency of occurrence of particular words) may be sufficient; but for reading, which is the primary function of an initial teaching orthography, data which take into account frequency of occurrence on the printed page are considerably more significant. So far as phonemes and phoneme combinations are concerned, my *Relative Frequency of English Speech Sounds* (3) still provides the most significant data available—data which have been relied on in the most important revision of the British *New Spelling* in 1930, in the construction of Ogden's *Basic English*, and of P'tman's i.t.a., as well as a host of less well-known projects. For graphemes, the available data are much less adequate. By far the most significant data thus far available are

in a recent study by Hanna (5), which examined about 17,000 words based on the Thorndike-Lorge list (9), culled from about 15,000,000 running words. This study, taking into account such further factors as position in the syllable and the presence or absence of stress, reported on phoneme-grapheme data, however, give no indication of the relative frequency of occurrence of particular graphemes on the printed page, for his category of most frequent words (corresponding to the Thorndike-Lorge AA) includes, without discrimination, words ranging in frequency from *the*, (probably about 75,000 occurrences per million running words) down to words such as *winter*, for example, with a probable frequency of about 100 occurrences in a million. The writer has a study in process of the occurrence of graphemes, based on the 100,000 running words of his study of phonemes. The new study should give, for the first time, trustworthy data on the relative frequency of occurrence of the commoner spellings of the sounds of English (4). In passing, it is interesting to note that in his 17,000-word corpus, Hanna finds a total of 334 spellings of 52 phonemes, requiring 170-odd different graphemes, as compared with 507 spellings of 41 phonemes requiring 262 different graphemes in the 1963 edition of the writer's *English Heterography*. (1).

Using these data and taking into account further so-called environmental factors and the morphological factors of compounding, affixation, and word families, the Hanna study then constructed an algorithm, or rule of procedure, which manipulated 77 different graphemes according to 203 rules. A computer programed according to this algorithm was able to spell just under 50 percent of the investigated 17,000 words correctly and another 36 percent with only one error! The writer can think of no more significant measure of the potential value of an initial

teaching orthography or the ultimate importance of eventual spelling reform than is provided by those figures.

Pitfalls

Before turning to an examination of i.t.a. as the outstanding example of an initial teaching orthography of the *supplementing* type and of World English Spelling (WES) as the most thoroughly researched example of the *standardizing* type, a word as to the commonest faults found in phonemic notations, whether devised as initial teaching orthographies or, more frequently, for spelling reform without recognizing the important differences in emphasis involved in an initial teaching orthography, is needed.

Phonemic faults, common to both the supplementing and standardizing types, include distinguishing too few, or occasionally too many, different phonemes; assigning existing single letters with too little regard for their predominant values in T.O.; and introducing too many rules or exceptions for phonemes or word groups of relatively infrequent occurrence.

Perhaps the most egregious fault, in any type of notation, is misuse of the letters *c*, *q*, and/or *x* for values wholly unrelated to their T.O. significations (e.g., for vowels or instead of consonant digraphs for wholly unrelated values, such as *lh*), for this action involves the effort of dissociation from any previous familiarity, a constant offense against compatibility, and an eventual redissociation from the acquired alternative value for an initial teaching orthography. Closely related to this fault, in its psychologic impact, is the use of caps and/or small caps for values other than the corresponding lower-case letters.

Another somewhat less serious, but nevertheless severe, graphemic handicap is the attempt to base an entire new (but professedly Romanic) alpha-
on upper-case forms, which are in-

herently less legible for lack of ascenders and descenders, instead of on the lower-case forms which make up over 95 percent of reading and at least 99 percent of all writing.

Yet another unnecessary handicap is the effort to provide a duplicate alphabet of upper-case as well as lower-case forms and sometimes even two more alphabets of large and small cursive letters, instead of concentrating on a single lower-case form to be written disjoined (manuscript writing) for handwriting with an enlarged or heavier letter or a single diacritic (caption) to identify capitals where desired.

The temptation to use diacritics is another pitfall which combines the disadvantages of both the supplementing and standardizing solutions, for a letter with a diacritic mark is, for the printer, just as much an additional character as a new design and on the typewriter requires three strokes (letter—backspace—diacritic), unless the typewriter has been altered to provide a quad key; in which case it still requires two strokes.

For the standardizing, no-new-letter type of notation, to which the immediate future of spelling reform chiefly belongs, because of the enormous difficulties of making new characters available in hundreds of type faces and sizes in tens of thousands of printing plants and on tens of millions of typewriters, the central problem is choice and assignment of digraphs. Here the commonest fault is failure to recognize that a digraph is a unit quite independent of the values of the component letters, and should therefore be devised and assigned for maximum compatibility with T.O. usages, rather than striving for a forced or logical relationship to the component letters at the cost of a bizarre result.

i.t.a.

Turning now to i.t.a. as the out-

standing example of an initial teaching orthography which supplements the resources of the Roman alphabet by additional characters, one finds quite predictably, that by the criteria its phonemic basis (that is, the number and nature of the sounds to be distinguished) rates practically 100 percent. The 40-sound foundation is supplemented by schwa, using both of the suggested devices: retaining any single letter of t.o.; and a special symbol, the modified *r*, which is, in effect, a diacritic signaling that the immediately preceding vowel, stressed or unstressed, is to be pronounced as schwa.

Graphically, the code is greatly simplified, and its effectiveness correspondingly increased, by having only one form, corresponding to lower-case print, for each symbol and by identifying capitals merely by a slight increase in size.

Assignment of the single letters of the basic code agrees completely (except for the inclusion of *c* as well as *k*) with the long experience of the British *New Spelling*, as well as the spelling reform version of wes. In the writer's judgment, for the purposes under consideration, these assignments cannot be improved upon.

Of the 20 new symbols supplied by i.t.a., 13 are easily recognizable ligatures of the digraphs employed by *New Spelling* and wes, both of which again are in complete agreement on 11 of these (all except the two symbols for *th*). Since these digraphs in turn are based largely on prevailing t.o. practice, their form, although more cumbersome in use than a simple unitary character, undoubtedly contributes somewhat to the ease of the all-important transition to t.o.

Most of the remaining seven i.t.a. symbols (the majority being for phonemes of relatively low frequency) are obviously suggestive of familiar t.o. graphemes. The precise forms of some are perhaps debatable; but the

writer regards criticisms of these details as altogether unprofitable at this time, for assuming that some could be improved, the overall effect on teaching results would be too slight to be significantly measurable by any tests now available. And, furthermore, the encouragement which such tinkering would give to what Sir James has called Babelization would be unfortunate for all concerned. Personally, the writer doubts if a significantly better initial teaching orthography of the supplementing type can be devised. The one aspect that does abundantly warrant experimental determination is the choice between the supplementing type and the standardizing, no-new-letter type.

While certain aspects of the basic i.t.a. code itself, e.g., choice of relatively cumbersome symbol forms resembling familiar t.o. graphemes instead of streamlined forms designed to save effort and space—and therewith money, the aspect on which Shaw laid chief emphasis—tend to differentiate it from a spelling-reform notation, the chief differences appear in the application of the code; the deliberate departures from strictly phonemic writing, through rules and exceptions—based on t.o. practice rather than on phonemic distinctions, collectively enhance compatibility in ways which contribute directly to the all-important transition to reading and writing in t.o. This aspect has been too little understood or justly evaluated by some of the more vocal critics of i.t.a.

It is at this point that objective data are particularly valuable; nevertheless, subjective judgment finally enters, in determining how small a gain in compatibility warrants an additional rule or exception. Thus, one of the most dependable phonic generalizations of t.o. is that where a single vowel is followed by a doubled consonant, the preceding vowel is short. In consequence, the i.t.a. rule retaining doubled

consonants for a single sound where T.O. has doubled consonants, improves the compatibility of nearly 7,000 words in 100,000 running words and preserves the exact T.O. forms of about 2,000. Similarly, some 80 percent of T.O. spellings of the /k/ phoneme involve the letter *c* to some extent; so that the I.T.A. practice of writing *c* (including *cc* and *ck*) where T.O. employs *c* for the /k/ sound, improves the compatibility of some 6,500 words out of 100,000, and retains the precise T.O. forms of some 1,200. On the other hand, the rule or exception which writes *tch* after a vowel, where T.O. has *tch* but *ch* where it does not (writing *clutch* but *much*, *etch* but *cach*, *match* but *ranch*, etc. and which affects less than one word in 1,000 running words), is difficult to justify. In between, lie such borderline cases as writing *nature* or *picture* as *naetuer* or *picetuer* instead of *naechur* or *picchur*, although current dictionaries no longer allow the more careful pronunciation, which affect only about two words in 1,000, but offer a distinct advantage in preserving the root which is retained in such derivatives as *native* or *pictorial*. On balance, it is most unlikely that experimental tinkering with such minutiae would yield significant differences in overall results, as measured by any tests presently available.

To summarize, it would seem that, for the present, far more may be accomplished for education by research to explore and develop the full possibilities of a phonemic notation as an initial teaching medium, using the wealth of teaching materials, more than a thousand items, already available in this particular medium, I.T.A. rather than by seeking minor adjustments before the major factors have been fully explored.

WES

One comes, finally, to an examination of the one outstanding example of

an initial teaching orthography of the standardizing, no-new-letter type, summarized in the folder "World English Spelling (WES) for better reading" (8). The spelling reform version of WES has been developed over a period of nearly a century by some of the foremost linguistic scholars of Great Britain and the United States. As an initial teaching orthography, this has been modified for the sake of compatibility in the light of the distinctive concessions from strictly phonemic writing recently developed and tested by I.T.A. Since both WES and I.T.A. derive most of their phonemic structure and much of their symbolization from the same sources, it is not surprising that they are virtually identical, except for the elimination of new characters by use of digraphs instead of ligatures or new letter forms.

More particularly, the phonemic basis of 40 phonemes is identical, but WES treats schwa by simple rules only, without a special diacritic symbol. The assignments of the 24 single letters employed (excluding *q* and *x* in both notations) are identical, and 12 of the 13 ligatured symbols of I.T.A. transliterate directly into the corresponding digraphs of WES. Of the seven remaining I.T.A. symbols, WES eliminates the alternate forms for *z* and *r* and for the rest substitutes the digraphs *zh*, *ng*, *aa*, *oo*, *uu*, of which only *zh* and *uu* are wholly strange.

In applying the basic code, the spelling rules and exceptions of WES for the sake of greater compatibility with T.O. are virtually identical with I.T.A., except for eliminating marginal details of insignificant effect, such as the *tch* alternative previously referred to or the writing of *judge* as *judzh* instead of *juj*. This has been done, not only because those carefully studied exceptions to phonemic writing are one of the important factors in the success of I.T.A. but also to eliminate, so far as possible in experimental comparisons, any inde-

pendent variable other than the fundamental difference between the *supplementing* and *standardizing* types.

The case for employing new characters not in the universally available Roman alphabet rests on the logical premise that a simple phonemic notation should have an explicit unitary character (a standardized digraph is an explicit *symbol*) for each phoneme and on the assumption that a beginning student, especially an infant, will be confused by the fact that the value of a digraph is rarely if ever a fusion of the values of the separate letters—e.g., the sound of *th* in *then* is not that of *t* plus *h* in *shorthand*; *ng* in *spring* is not the *n* plus *g* in *engage*; the sound of *au* in *author* is not a fusion of the vowel sounds of *bat* and *but*; *ie* in *tie* is not a fusion of the vowel sounds of *bit* and *bet*, etc. To this assumption there are at least three replies:

1. The number of digraphs, exclusive of doubled consonants, in the leading languages of western Europe, ranges from 5 or 6 for Spanish or Italian, to 22 for Dutch, with a medium of 12 or 14 for French or German; yet so far as the writer is aware, no spelling reform movement in any of these countries has included proposals to create new single characters to replace these digraphs.

2. Misleading juxtapositions, such as in *shorthand* or *engage*, are so infrequent as to be almost negligible and, in any case, may be separated by a dot in the earliest stages of learning, if deemed necessary.

3. So far as either the theoretic or practical objections are concerned, a ligature below a digraph, used if desired at its first introduction or during the first weeks of learning, makes it just as much a unitary symbol as the ligature above or between the component parts of the majority of the i.t.a. ligatured symbols.

If it can be demonstrated that the educational results obtainable with the

standardizing type, no-new-letter orthography (*wes*) keeping strictly within the limitations of the universally available Roman alphabet, are at least comparable with those obtainable with the supplementing type (*i.t.a.*), the former offers certain important advantages, both in the classroom and after.

For the pupil, in the classroom, it obviates learning to read, and especially to write, 20 new characters which will shortly be abandoned. For the teacher, it facilitates preparation on any standard typewriter of supplementary teaching materials adapted to meet particular situations. For both pupil and teacher it permits use of the standard typewriter as a teaching instrument in the earliest grades. Its great possibilities were demonstrated by Wood and Freeman 35 years ago.

For the adult abroad who has been taught English as a second language, *wes* offers the exciting possibility of continuing to use it as an international auxiliary medium of communication: *reading* traditional orthography but *writing* in *wes*, thereby bypassing the considerable added burden of learning to write—that is, to spell—*t.o.* Incidentally, for the native adult who gets fed up with some of the grosser idiosyncrasies of *t.o.*, it interposes no obstacle to carrying over into his own personal writing such phonemic forms as the spirit moves him to retain.

It is such possibilities as the preceding, both in and out of the classroom, which give point and even urgency to controlled experimentation with a no-new-letter initial teaching orthography, more particularly *wes*. Abundant teaching materials of high quality from many publishers are already available for *i.t.a.* Surely, sufficient materials of comparable quality can be provided for *wes*, probably with the help of some foundation, as soon as qualified investigators are ready to undertake the task.

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A Comparative Structural Analysis of the Oral Language Materials and the Basic Readers Used in Philippine Schools

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IN THE PHILIPPINE PUBLIC SCHOOL SYSTEM, English is the language of instruction from grade three through the university. The native language is used in the classroom in grades one and two while at the same time pupils learn to read their native tongue. During these first two grades, system-

atic instruction in English as a second language is carried on largely through oral activities in the regular class period. Beginning reading in English is postponed until the latter part of grade two.

The pupil is introduced to reading in English with teacher-prepared materials. The teaching aids commonly used include flashcards, charts, and chalkboards. Beginning reading materials are confined to the same dialogues, rhymes, and stories previously mastered in the oral language lessons.

Formal book reading in English is begun only in grade three. By that time the pupil should have learned to read in his native tongue. All throughout the rest of the elementary grades, the child is taught reading both in English and in his native language.

Problems in reading English as a second language

The pupil in grade one is ready to read his native language since he has spoken it all his life. He has acquired adequate oral experience so that he can associate the printed symbols with the sequences of sounds in speech. He can also recall the concepts which these printed forms represent.

The pupil's ability to read the Filipino language contributes to his readiness in reading English as far as physical preparation is concerned. Both the native language and English are written in the Roman alphabet. The Filipino child does not have to learn a new set of characters like that of a Thai, Arab, or Japanese learning to read English. Habits and skills which the Filipino child has acquired in reading his native language can easily be transferred to the process of reading English. The Filipino child has, therefore, acquired skills in eye movement from left to right and top to bottom and letter discrimination and recognition when he starts reading the second language. But the ability to

read the native language can also be a great handicap in acquiring reading skills in English. The sounds of the letters in the Filipino language differ from those of the English alphabet. Each sound in the Filipino language is consistently represented by one letter symbol, unlike the situation in English. Almost all letters in English represent more than one sound, and most sounds are represented by more than one letter or combination of letters.

Differences in the rhythm and intonation system of English and the Filipino language tend to create another difficulty. When the Filipino pupil reading English fails to observe correct phrasing and blending within thought units due to unnatural rhythm and intonation, the meaning of the passage is confused. This difficulty is compounded if the pupil reads unfamiliar words and sentence patterns which he has not heard or spoken before.

English is a second language to the Filipino child. He has to learn English under many limitations. The pupil has to cope with the interference of his own deeply ingrained native language habits as he acquires new ones. Unlike the child who grows up in an English-speaking environment, the Filipino learner will be exposed to the language for only two or three hours a day in school. He will have only one teacher of the language who is usually a second language speaker of English herself. This teacher, therefore, cannot be an authentic speech model for the pupils.

Compared to the first language speaker, the Filipino pupil begins to read English with a very inadequate oral background. Studies in language development have shown that an English-speaking child is already proficient with "whatever sound system, grammar and vocabulary he has learned most frequently at home." (2) when he enters school. In other words, the English-speaking child has

a complete control of the basic sounds and sentence patterns of his language at the age of six. On the other hand, the oral language repertoire of the Filipino pupil who begins reading in English will consist only of the language structures taught in his oral language program in grades one and two.

Oral language as basis for reading

It is clear that the major problems of a Filipino pupil learning to read English arise from his inadequate control of the sounds and structures of the language. If the pupil begins to read English materials which he has not acquired in his oral language, "he will likely transfer the sounds of his native language to the English text" (4). Studies in reading of bilingual children have shown that "if the sound system of their vernacular is transferred to English, meaning is confused" (4).

The difficulties in learning to read English as a second language stress the need for using the pupil's oral language as bases for developing his reading materials. If reading materials in English for Filipino pupils are written in words and sentence structures which are counterparts of the oral language lessons, comprehension is better. Pupils will be able to read with fluency. The process of reading will also reinforce mastery of the oral language.

The Philippine center for language study English guide series

In the Philippine public schools, the curriculum materials used in the program of teaching English as a second language have been developed by curriculum writers of the Bureau of Public Schools with editorial and technical assistance of specialists in language teaching and linguistics from the Philippine Center for Language Study. The center was established as part of the Philippine government--University of California Language Program

with Rockefeller Foundation support to help in the solution of language problems in the Philippine educational system. These curriculum materials consist of teachers' guides, language textbooks, and pupils' workbooks. These are authorized language texts in the elementary grades.

The linguistic and pedagogical soundness of the PCLS English Guides series has been recognized. Albert Marckwardt (10) of the National Council of Teachers of English evaluates the materials:

We are now acquiring valuable experience in developing materials and training teachers of English as a second language throughout the world. One of our most notable efforts has been in the Philippines where the University of California, with Rockefeller Foundation support, has undertaken an ambitious program and has executed it ably. Elementary school textbooks have been developed, teachers have been trained. . .

An evaluation report, "English Teaching on the Rim of Asia," also states that "the Center has to its credit an excellent six-volume series for the teaching of English in elementary schools" (11).

The *Teachers' Guides in English* (17) consist essentially of subject matter and methodology for effective teaching of English as a second language to Filipino children. Each language lesson has been designed to provide the learner with highly motivated language experiences focused towards mastery of specific language patterns at a time. The crux of the methodology is the control of language structure and vocabulary to insure intensive exposure to the language and faster pace of learning. The selection and sequence of language patterns included in the teaching guides were derived through a contrastive analysis of English and the Filipino language. This linguistic technique involved the alignment of the two linguistic systems on the three levels of sound, structure, and vocabulary, in order to

identify contrasts and to predict learning difficulties of Filipinos (6). A hierarchy of difficulties was evolved which was the basis for the choice and cumulative sequencing of patterns to be taught in the language lessons.

Structural control in readers

Recent studies in linguistics and reading have shown that patterned groupings of words, not words in isolation alone, determine the degree of difficulty of reading materials. Word order is important to signal meaning. A change in the position of a word will alter the meaning of a sentence. For example, the lexical meanings of the words *man*, *bites*, *dog* are the same in the sentences *Dog bites man* and *Man bites dog*, but the structural meanings are different. Also, if the reader fails to see the structural relationships, he will fail to get the meaning expressed in the sentence *The man was bitten by the dog* or he will fail to relate the meaning to that of its deeper structure *Dog bites man*. Structure is a carrier of meaning as well as the individual words.

Structural control is an important consideration in developing beginning reading materials for Filipino children learning English as a second language. There should be a careful restriction of the kind and number of language structures to be used in the reading selections to suit the oral language competence of the readers at each particular level of language learning. The language structures should correspond closely to the structures taught in the oral language lessons. The systematic and gradual progression from simple to more-complex patterns in the oral language materials should also be maintained. Oral language lessons begin with the simple, easy, and useful patterns; therefore, beginning reading materials should also begin with these kinds of patterns. At the initial stage of learning how to read, there should

be rigid control of patterns. But as the pupil grows in his reading in the upper grades, control should necessarily be relaxed. Varied and complex patterns should be used in order to cope with the widening interests of the child. Structural control in reading materials for second language teaching consists of the use of simple, familiar sentence patterns and their variations and expansions, gradual progression from simple to more complex structures, and repetition of patterns in meaningful situations.

Structural control will ease the difficulty of learning to read a new language. The child will not be confronted with the additional problem of learning an unfamiliar sentence pattern in the process of recognizing and interpreting written symbols. The learner will experience success at the initial stage which should greatly influence his lifetime attitude towards reading.

Comparison of language structures in readers and oral language teaching guides

A comparative analysis of the language structures in the basal readers and the oral language materials used in Philippine schools will provide useful guidelines for evolving more effective materials in teaching the Filipino pupil to read in English. This study will be so designed that language structures will be classified into three categories: language structures used in both the oral language materials and the readers; language structures used in the oral language materials but not in the readers; and language structures used in the readers but not in the oral language materials. The results of the study will also reveal whether there exists an identifiable sequence of development in the complexity of structures in the readers which is parallel to the sequence in the oral language materials. The degree of similarity in the kind and frequency of language struc-

tures in the readers and the oral language teaching guides will be indicative of the suitability of the reading materials to meet the oral competence of Filipino pupils at each grade level.

The procedure for the comparative structural analysis will be built on previous studies, particularly that of Strickland, Loban, Riling, Hunt, and O'Donnell. Strickland's study (16) compared the structures used in the oral language of elementary school children with the structures employed in their reading textbooks. She reported that children used a great variety and complexity of language patterns which were not matched in their reading textbooks. Ruddell (14) made a follow-up study and confirmed the basic assumption of Strickland that comprehension is better if reading passages employ language structures frequently used in oral speech. Loban's study (9) also revealed that competence in the spoken language is a necessary base for competence in reading.

The technique for structural analysis in this study will integrate devices derived from structural grammar and transformational-generative grammar. The communication unit used in Loban's study will be adapted as the unit of analysis. This unit is the same as that which Keflogg Hunt (8) calls the "minimal terminable syntactic unit" or "T-unit." Hunt defines T-unit as one main clause and all the subordinate clauses attached to it. The T-unit is a complete sentence or the "shortest grammatically allowable sentence" into which the language can be segmented.

The use of the T-unit, instead of the sentence as the unit of analysis, is supported by recent linguistically-oriented studies. Hunt's study reported that difficulty to comprehend materials is related to the lengths of clauses, not of sentences. A longer sentence consisting of strings of T-units joined by *and's* may be easier to comprehend

than a shorter passage resulting from reduction of T-units into modifiers.

The first level of analysis is focused on the structural pattern of each T-unit. Each T-unit is segmented and classified into basic statement patterns and their derivations including 'interrogatives, passives, negations, imperatives, emphatic statements, and partials. This system of classification is based on the system used in the Philippine oral language teaching guides (17).

The second level of analysis gives a more precise description of the complexity of the grammatical structure. It involves a transformational analysis of each unit by determining the kinds and number of sentence-combining transformations.

Sentence-combining transformations are the "process of producing one sentence where otherwise there would have been two" (12). One or more T-units or independent clauses are reduced into subordinate clauses or non-clause modifiers and consolidated into a single grammatically interrelated unit. O'Donnell illustrates how this grammatical process of reduction and consolidation results in the complexity of the sentence structure. Thus, the independent clause or T-unit, *The man was rich*, is embedded as a clause modifier in the base sentence, *The man bought a car*, to produce the derived sentence, *The man who is rich bought a car*. Or the clause *who is rich* is further reduced as a nonclausal modifier in the derived sentence, *The rich man bought a car*.

Sentence-combining transformations increase the difficulty of comprehending a passage. Although the style becomes more succinct, there may also be the danger of structural ambiguity for the reader. The consolidation of T-units reduces the number of words in the passage, but more ideas and thoughts are usually condensed into a single intricate grammatical structure.

The reader usually finds the meaning of such single complex structure difficult to grasp.

In this study, the analysis will be focused towards those aspects of grammatical structure which are regarded as crucial for reading comprehension. The data to be compared are 1) average number of words in T-units; 2) average number of clauses in T-units; 3) number of T-units in sentences; 4) basic structural patterns; 5) derived interrogatives, passives, negations, imperatives, emphatic statements, and partials; and 6) kinds and number of sentence-combining transformations.

Value of contrastive analysis in developing second language readers

One significant implication of the results of this study is the importance of a contrastive analysis of the learner's native language and the second language to be learned as basis for evolving effective reading materials for second language learners. The contrastive analysis should give authors of reading textbooks useful insights into the problems which a pupil with a particular native language background meets in learning to read English. Writers of reading materials will be more aware of potential comprehension difficulties that can be traced to the nature of the pupils' native language. Writers will know which structures in English are easy and simple to a pupil because of similar structures in his native language and which structures are difficult because of contrasting structures in the first language. Reading textbooks can, therefore, be designed so that comprehension will be better by utilizing easy structures in beginning reading and gradually introducing more difficult patterns as pupils grow in reading competence.

The results of this study should yield data which will be useful in evolving a list of structures for the use

of authors of reading textbooks in Philippine schools. This list will complement a similar vocabulary list specially derived for Filipino children on the bases of their cultural and linguistic background.

Readability in second language teaching

Reading progress is enhanced if pupils are taught to read using materials they can understand and enjoy. But if pupils use materials that are too difficult to understand, they fail to acquire facility in reading. Their reading progress deteriorates since they do not derive satisfaction in the process.

Writers must consider the particular group of pupils for whom they are writing in order to produce materials that can be read with ease and pleasure. The content and style of the reading materials must be suited to the experiences, interests, linguistic ability, cultural background, and stage of development of the intended readers.

The capacity to enjoy and understand fully a reading selection varies considerably among different groups of children. In other words, ease of comprehension and enjoyment in reading depend on both the quality of the material and the nature of the reader.

Readability formulas have been evolved to help authors determine the reading difficulty of their materials. This index of difficulty should then guide the teacher in choosing which particular group of pupils will be able to read materials of a given level of difficulty with facility and maximum understanding. But it is clear that these formulas are not valid in a second-language situation. Textbooks with a readability level of seven in an English-speaking environment will certainly not be of the same level if the readers are Filipino children.

So far, no readability formula exists which is applicable to second-language materials. There is a dire need for

scientific investigations designed to adapt measurements of readability to the needs of readers learning English as a second language.

Reading a second language as challenging field of research

This study will attempt to define ways of improving reading materials in Philippine schools. But it is believed that its major significance will be the disclosure of the multifarious problems of learning to read English by second-language speakers.

English is the medium in which millions of nonnative English-speaking peoples in Asia, Europe, Africa, and other parts of the world acquire their education. Most people in various nations of the world learn the latest advances in science, technology, arts, and culture only through the English language. Considering the important role of the language in the modern world, better programs and materials in the teaching of reading English for second-language learners will greatly contribute to world literacy and progress. Problems in the teaching of reading English to speakers of other languages in indeed a rich and challenging field for research scholars and reading specialists.

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Teacher Education: Privileges and Problems Associated with Reading Programs in Developing Countries

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MAHEU (5:414), the Director General of UNESCO, reported last November that despite all efforts of past years and the progress of recent years, one third of the world's children of school age still have no school to go to and about one half of the adults in the world are illiterate. Despite the immensity of the problem, the less-developed countries are experiencing such a surge of growth and renewal that a world crisis in education has developed. The teacher is a key person in meeting this crisis if his professional education has been adequate.

This paper will discuss teacher education in developing countries focussing on selected problems and privileges of reading teachers in schools. Four problem areas will be discussed, each under a caption familiar to investigators of the reading process: problems of blending, comprehension, rate and personal reading satisfaction. *Privileges* in this paper refer to the special advantages which educators from more-developed countries can have when working with educators from less-developed countries, the privileges of understanding and of guiding others into understanding problems of teacher education associated with reading programs.

The magnitude of the total problem of which teacher education is a part was recorded in the UNESCO Chronicle (1: 51). "The conditions for development have not yet been secured in the

majority of developing countries" and "... the gap between the developed countries and the developing countries is still widening and creating greater social, political and economic tensions." The problem continues to grow. One has not yet advanced to the place where the problem is diminishing. It is imperative, therefore, that all forces which can hasten development in emerging countries be marshalled.

The education of the masses is a vital part of the development of emerging nations as the skills of reading and writing are means to ends which can embrace any avenue of human welfare, social progress, and political growth. Since 1947 when the work of UNESCO gave a positive impetus to the eradication of illiteracy, the three terms of *literacy*, *fundamental education*, and *community development*, although defined differently in widely scattered areas of the world, have nonetheless reflected the increasing emphasis on the national, social, and economic environment of students who are striving to become literate. Teacher-education programs have little relevance if planned apart from personal, student needs and the national needs of the country in which students study.

To develop literacy programs and to extend them to ensure that a functional level of literacy, which is sufficient to allow the individual if necessary on his own to extend his range of knowledge, necessitates educational planning of which teacher education is again an integral part. The particular plan adopted should be integrated with the general and specialized national needs, should prevent dropouts, should include women and girls, and should teach relevant content and if necessary use methods which may represent radical deviations from the traditional. Each of these stipulations represents a particular problem of some literacy programs, and it is the underlying is-

issues of these problems which should be identified and provided for in teacher education if adequate plans are to be formulated. What, too, are some of the privileges that can be enjoyed by educators from more developed countries?

The suggestions to follow are confirmed by the writer's personal experience which includes nine years in Ethiopia as a teacher and administrator both for the Imperial Ethiopian Government and for the private school system, two years as organizer in Canada of the Uganda Primary Teachers Pilot Project under joint sponsorship of the Canadian Government External Aid Office and the University of Alberta, and three years as a staff member associated with the Intercultural Education Program of the Faculty of Education, University of Alberta.

A blending problem. Children who have difficulty with word synthesis, because they cannot blend sounds orally, are a particular problem to reading teachers. Similarly, educators responsible for teacher education in developing countries ponder over the personal cultural synthesis which learning to read demands of new literates, problems which require them to blend the "new" with the "old," "ours" with "theirs," and the "official" with the "traditional."

Teachers involved in literacy programs should be taught how to help readers reach forth for new knowledge and to use it judiciously without discarding the heritage of the past. This heritage could be narrated often in reading materials graded in difficulty for new readers, but sometimes it is either not available to educational publishers or not acceptable to them. Mass media, such as books, bring about new polarizations of individuals and groups in a developing country. When only oral communication existed as a means to remember best the things people felt most deeply, many

times the older men guarded each word jealously and ceremoniously passed on their verbal treasure to tightly knit social groups. These older men were rich in experience and understanding and were masters of oral communication. If oral treasures are captured in print, the older men have to relinquish their revered place as communicators in the tribal society to a young lad or two who can read. Not only is this most difficult for the older men but in many cases it is undesirable that the very young assume the task because they lack the maturity to interpret many of the experiences satisfactorily. To prevent this shift in influence within their tribal society from themselves to a youthful teacher and his students, some older people withhold the recitation of the group's heritage; and reading materials for new adult literates have other content exclusively.

Occasionally the proverbs and narrations are available, but young editors who are recent graduates from universities and who may be too zealous for rapid conformity to the technological age consider these communications from past centuries too binding or irrelevant and deliberately ignore them.

In both instances the opportunity to blend the new in the culture with the old is lost. To those living in more highly developed countries comes the opportunity to be aware of these blending problems the people of emerging countries face, to understand, and to patiently instruct, so the wisdom of the past is passed on and so those who have transmitted it previously retain sufficient status to prevent a premature social collapse of any group structure by removing important people from their roles before acceptable substitutes are provided.

The technological advances of more developed countries must be blended with the existing economic structure of the developing country. Because of

the urgency of the situation, adult workers often are taught to read just before they begin a new job and often are required to educate themselves for advancements in industry through their own reading. Time may not be available to reading teachers to develop an extensive general vocabulary before technical terms are introduced. The old teaching methods and materials are often insufficient for the comprehension tasks facing adult readers, and reading teachers must devise teacher education programs to cope with the nature and the urgency of the need. Educators have the privilege of understanding the need of the new literates to vault over the centuries and to approach the present position of developed countries within a generation or two. But one's materials and methods may be too much a part of one, and parting with some of the icons sitting on the reading god shelf may be very difficult! Schramm (7), a world authority on mass media development, sees exciting new possibilities within the next decade for educational radio and television, using communication satellites. In teacher-education work in developed countries it is one's privilege to relinquish less effective methods and to be ready to work through new media with new methods and new materials.

In many emerging countries teachers are faced with the complex problem of making people literate in a language other than their tribal tongue. As language carries the culture of the people, to adopt another's language is in many instances tantamount to adopting different laws and customs. These shifts can be upsetting for the individuals and create far-reaching changes in the socioeconomic and political structure of the tribal society. Some countries could not agree which tribal tongue should be the official one, so they adopted English. Considerable emphasis then is placed upon the teaching

of English. The teaching of English as a second language differs greatly from the teaching of English as a first language, a fact which many educators acknowledge but neglect in their classroom practice. Yet it is here that the linguist and the teacher-education staff could work together in teacher-education courses to analyze and compare the two languages so similarities between them could be capitalized upon and their differences stressed. It is here also that the anthropologist and the teacher-education staff could work together to identify significant cultural differences in the learning situation.

Teachers of reading in developed countries have the privilege of being much more sensitive than they often are. Actions belie sensitivity as cartoons of well-used older editions of basal readers are shipped to developing countries. The books are old and dog-eared so the recipients conclude they rate second best with the senders. The culture depicted is this country's, not theirs, so lengthy explanations must form a major part of the daily reading lessons if even minimum student comprehension is to be attained. How much better it would be if instead sensitivity sessions were organized in which listening and learning about the other culture were the first objective. Then summer work sessions with the nationals of the other culture could follow with guidance provided in various tasks associated with the production of reading materials. There would be no insistence that particular methods, materials, or techniques be employed, but freedom would be allowed the teachers of developing countries to determine their own direction even if other educators believed it to be a poorer choice.

Greenberg (2: 3) discussed the problems adults face who have been transplanted to a foreign land of new and strange language and customs, problems which adults of one tribe also

have when they must become literate in an official second language of another tribe. The patterns of thought—vocabulary, pronunciation, and sentence structure—that had become natural and habitual in their earlier life and that were once accepted and beneficial may now become intrusions and mistakes when these learners are faced with the second language. He believes these language difficulties of transplanted adults are in many respects the counterpart of a neurotic habit. This is a part of the blending problem, and it is one's privilege to understand and to provide some answers in one's teacher education programs.

A comprehension problem. A child who cannot understand what he reads is in serious trouble. The reading teacher, too, who does not understand the impact of the shift of emphasis in a developing country from the oral word to the written word is in serious trouble in his teacher-education program. The advent of the printed word into a culture which previously depended entirely upon the spoken word brings conflict and precipitates basic changes. It is imperative that educators comprehend the problem. Riesman (6: 7-8) voice the problem in these words, "What I am getting at is that the spoken or sung word is particularly impressive when it monopolizes the symbolic environment; but once books have entered that environment the social organization can never be the same again. Books bring with them detachment and a critical attitude that is not possible in a society dependent on the spoken word."

The written word does change the social organization, and it is insufficient to attend only to the blending of the new with the old as indicated previously. An understanding of both the old and the new is essential if the blending process is to be effective.

To return to Riesman (6: 8, 13, 34), people who depend upon oral

communication are bound one to the other and to the group of which both are a part. As the memorable words in the culture are often those which are most charged with emotion, the individual is tied emotionally to his group. The printed word breaks this tie and allows the reader to contemplate and make comparisons from group to group and to try on new emotions. A book then "... creates space around people and even isolates them in some ways." These same changes have been and still are a part of one's culture; but because they have taken place more slowly, one is not always aware of the explosive nature of the same changes in developing countries. Once again it is one's privilege to comprehend this problem.

It should be clear why the older people within the developing country resist changes which will restructure existing social organization and why they are afraid often to become literate themselves, hiding behind an attitude of indifference or even of antagonism. These older people often resist the education of their young because of the fear that the young people will lose their identity with the group. In a sense, they are right. Young people, once literate, communicate with many people holding widely differing points of view; but their parents, not so privileged, confine themselves to a restricted range of thoughts, and a mental rift develops between young and old.

Too frequently reading teachers and those in teacher-education institutions proceed with their programs with little thought of the sociological implications of their task. The present increased attention to the sociological settings of reading is gratifying, but it needs to be extended and sustained. As an educator it is one's privilege to enlist sociologists as members of planning and teaching teams. In reading programs of developing countries the most urgent.

Jenkinson (4: 18-19) spoke of the world problem of reading at the First World Congress on Reading and commented that the demands of an automated society will make economic outcasts of those who reach only a functional literacy level. As marginal literates they present one of the greatest social and economic problems in modern highly industrialized nations. She would more fully define literacy as technological literacy, an academic equivalent to approximately seven years of schooling which would equip the student with considerable skill in word recognition, "... a wider reading vocabulary and an increasing ability to cope with the expanding complexities of ideas and their expression." As developing countries advance technologically, the teacher-education reading programs must be prepared to cope with these economic demands.

Hanson (3: 36), speaking particularly of the economic progress of African nations, warned that more than knowledge and new technical skills is needed in nations that would be modern. They need a whole set of attitudes which create the climate for modernization: a spirit of innovation, of adventure, and of willingness to be physically involved in a task other than sitting behind a desk. The responsibility of the school is to aid in the development of these attitudes. It is not easy for educators of more developed countries to understand the tendency of new literates to seek the comparative security of a government desk job because one is accustomed to the benefits of social security, medical health plans, and pensions, and insurance plans. Even when one does serve overseas, one usually continues these benefits during the term of assignment. Most educators think seriously before changing employment to ensure that the security gained will not be disturbed. Young people in developing countries do not ask educators from

abroad to cast away their security, but they do ask for recognition of the fact that educators from more developed countries often ask them to give up security they themselves cling to. One must be aware of their position and one's role is a privilege and a challenge.

A rate problem. As the child learns his basic reading skills and habits, he increases his reading rate. He is encouraged to do this so the most efficient use of his reading time is made in varying his rate to suit his purpose. In the educational systems of developing countries the teacher-education programs are faced with serious rate problems. Staff members and students acknowledge that developing countries need to move as quickly as possible toward an acceptable and tolerable level of technological and social development. But change to be acceptable and permanent necessitates a certain period of readiness so that a new personal and social orientation rather than a disorientation is effected. Much more time for development has been available to other countries than is available to developing countries now. Many young people of countries emerging today are insisting that development in every facet of the lives of people be made too quickly, with the result that many freedoms are acquired without the much needed restrictions and disciplines of the responsibilities that must accompany the changes.

As the gulf between the developing and the developed countries continues to widen, the problem of rate of development increases. Tensions build, and communication channels between groups of older and younger people clog. Pent-up emotions and displays of raw power culminate in demonstrations and riots. Despite the dimensions of the problem, teacher-education staff members can contribute by earnestly studying ways of innovating which will meet the demands to effect changes sooner more acceptably.

Perhaps the reading lessons could be taken to workers on the job, and then they could develop more skills and abilities through the reading materials currently demanding their attention. Perhaps, too, the education of the young could be carried back to their tribal group more consistently so contact would be maintained and the continuous series of years segregating students and families, so common in many developing countries, would be replaced. The people of developing countries cannot wait as others have waited over the decades and the centuries, but perhaps a less tumultuous change would result if the people effected some of the changes they desired as they learned to read and write.

The problem can become more complicated if some in developing countries believe that they are receiving a second-class education when the program, methods, and materials do not parallel those of a developed country with which they have been in touch. They often insist on being taught to read with methods more suitable to other countries and languages and with books whose reading materials do not convey their own culture. Educators in teacher-education programs need much tact in explaining why these programs which worked so well in one setting may not be so effective in another. One should understand though the intensity of the desire of young people to have the best program available.

A personal reading satisfaction problem. Many times in their own more developed countries, educators have been faced with the revelation that although many children can read well, for one reason or another they derive little satisfaction from reading and only pursue the task when they must. Understanding teachers, therefore, seek to inculcate a love for reading in the students or at least a respect for the dividends the reading process

can pay. It is not uncommon in the educational systems of the developing countries for the individual, his personal needs, and satisfactions to be submerged in the national needs. Students may feel they are being swept along in predetermined courses which offer fewer choices than would be available in more-developed countries. Although no immediate and satisfactory solution may be available to the student, teacher-education personnel can help students keep an overall personal perspective so they derive great satisfaction in communicating well themselves and in teaching their students.

The problems of teacher education in developing countries are numerous and complex, and the privileges extended are many. Lack of participation and understanding on one's part as an educator, however, will most certainly turn one's privileges into constraints and preventions. The price of the alternatives to participation with understanding is too high in terms of

world peace. Others less acceptable to the free nations could take away privileges by their participation. One can prevent that by a willingness to be involved.

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The Acquisition Program

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ONE OFTEN SPEAKS of the need to base educational practice on evidence gathered in a scientific fashion rather than on emotion or opinion. Indeed, considerable effort is often made by educators to obtain supporting evidence before installing a new program or curricular pattern. At the same time, numerous factors operate to discourage a bona fide scientific approach to solving problems in education.

Educational research suffers from inadequate control of variables which are extraneous to an investigation. Teachers and children simply do not behave with the same regularity and consistency as copper sulfate or a laser ray. Furthermore, decisions on educational matters often require an immediate answer and cannot always wait for careful experimentation and analysis of the data. These and numerous other factors promise to limit the extent to which all educational decisions can be made with scientific rigor.

Furthermore, until recently one single factor made it almost impossible to study the evidence *already* available to educators: namely, inaccessibility of the information. Despite the limitations cited earlier, considerable rigor could be brought to bear on education if the available evidence could be readily obtained and studied. With the inception of the Educational Resources Information Center (ERIC), sponsored by the U. S. Office of Education, a major breakthrough with regard to the accessibility of information has been accomplished.

In 1966 the ERIC project was established by the Bureau of Research, a branch of the U. S. Office of Education. The ERIC system originally consisted of twelve centers at separate locations in the United States, each specializing in a particular aspect of education. The centers were charged with the task of identifying pertinent information in their given fields—acquiring, abstracting, indexing, and disseminating the information.

One center was established to specialize in reading. Located at Indiana University and jointly sponsored by the International Reading Association, the U. S. Office of Education, and Indiana University, the ERIC Clearinghouse on Retrieval of Information and Evaluation on Reading was created. Better known as ERIC/CRIER, the Clearinghouse on Reading is now one of eighteen information centers for education.

The task of an information center is to bring together the users of the service (in this case, teachers of reading), and the body of information stored at the center. This appears to be a rather straightforward operation with the first step clearly being the collection of a useful body of information.

Careful reflection about the body of available information on reading, however, reveals that a plethora of material is available. Unless all existing information could be identified and collected—an impossible task in a field as diverse as reading—only major sources can be systematically moni-

tored. Furthermore, the potential users of ERIC/CRIER vary in need from those of a curriculum committee assembling a district guide to the needs of a medical doctor experimenting with neurological brain disorders in reading performance. Finally, reading is in a constant state of change. Future needs of users are most difficult to predict and satisfy under these conditions.

What solution to these problems has been offered by the staff at ERIC/CRIER? Initially it was necessary to develop a scope note for the clearinghouse; a succinct description of the information desired follows:

The Clearinghouse on Reading is responsible for acquiring research reports, materials, and information related to all aspects of reading behavior with emphasis on physiology, psychology, sociology, and the teaching of reading. Included are reports on the development and evaluation of instructional materials, curricula, tests and measurements, preparation of reading teachers and specialists, and methodology at all levels; the role of libraries and other agencies in fostering and guiding reading; and diagnostic and remedial services in school and clinic settings.

Within these limits, then, a network was developed to identify and acquire significant information for the clearinghouse.

Specific sources of information on reading can be identified by educators today. An acquisitions system which ignored the wealth of material presented at reading conferences across the nation, for example, would be woefully inadequate. Therefore, the Clearinghouse on Reading has established communication with Claremont College, the University of Pittsburgh, Hofstra University, etc., and arranged to receive papers presented at their reading conferences. Twelve additional information sources will be detailed subsequently.

First, remember that ERIC is a decentralized system, having eighteen clearinghouses in all. While each

clearinghouse can and does identify specific sources of information crucial in its field, a number of sources are valuable to all clearinghouses. For this reason, then, Central ERIC, the nerve center of ERIC located in Washington, D. C., has established one communication link with these sources. If each clearinghouse contacted the NEA, for example, to request significant documents, all semblance of order would quickly dissolve. Under the present arrangement, Central ERIC receives all material from NEA, identifies the area of interest, and forwards the documents to the appropriate clearinghouse. Seven sources of information are handled in this manner:

1. United States Office of Education Bureau of Research Reports
2. Other office of education reports
3. School Research Information Service (public schools)
4. National Education Association
5. State department of education
6. Defense Document Center (DDC)
7. Other federal agencies (Department of Labor, etc.)

Returning to the Clearinghouse on Reading, thirteen sources of information are important to the acquisitions program:

1. Published research literature
2. Reading conferences
3. Related conferences
4. Dissertations
5. Public schools
6. Foundations
7. Tests
8. Textbooks
9. Instructional materials
10. Satellite centers (e.g., University of Pennsylvania—Dyslexia)
11. Other clearinghouses
12. Fugitive materials
13. Miscellaneous

One additional source for acquisition of significant information on reading is professionals in the field. Teachers, consultants, specialists, supervisors,

principals, professors, and the like, all have access to useful and worthwhile information. One is encouraged to send such documents to ERIC/CRIER for consideration. All information is carefully studied by professionals at the clearinghouse and judged according to designated quality-control criteria:

1. Does the material reflect professional competence in its preparation?
2. Does the material discuss issues or projects of current significance?
3. Does the material have substance and exhibit the potential of having an impact on current concepts or practices?
4. Does the material aid in organizing and pulling together some topic or area in reading?
5. Does the material outline methodology of procedures which could be of use to others?
6. Is the material of recent origin (1960 onward) and not readily available through published sources?

These quality-control criteria are applied across the board in evaluating materials acquired at ERIC/CRIER. The broad nature of the acquisitions network coupled with carefully applied quality control operate to make the store of information at ERIC/CRIER very complete and useful.

Previously, it was stated that decision-making in education was limited by the inaccessibility of evidence already available. In concluding, the writer wishes to say that ERIC/CRIER will not solve this problem tomorrow, or next year, or perhaps ever. However, definite strides have been made in the direction of making useful information available. A mature ERIC system will offer much assistance to those who seek to study the available evidence.

Retrieval by Computer

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THE MODERN DIGITAL COMPUTER is certainly one of the most interesting and practical tools ever developed by man, and its impact on society has been compared with the effects following the invention of movable type and the printing press. Like its immediate predecessor, the electronic calculator, the computer was originally designed to perform numerical computations at extremely high speeds with extraordinarily good accuracy. In addition, it was designed to operate under the guidance of a stored program so that it could perform long sequences of operations without the need for human intervention.

During the past several years there has been more and more interest expressed in the use of computers for primarily nonnumerical tasks. For the most part this expression of interest has come from two groups: specialists in linguistics, who have been interested in machine translation from one natural language to another, and specialists in the new field of information science, who are interested in the problems of storing, retrieving, and disseminating information. At ERIC/CRIER one deals with the problems of the latter group, and the computer is simply one of the tools which one uses to facilitate the storage, retrieval, and dissemination of information in the field of reading research.

A prerequisite to information processing by computer is that the data which one wishes to manipulate must be in machine-readable form. This is just a way of saying that the data must be on punched cards, punched tape, magnetic tape, or some similar medium which is suitable for input to the computer. Once this preparation is done, a program is written which instructs

the computer to process the information in the desired manner. Programming is a particularly important stage in the handling of data by computer, because (barring equipment failure) the machine will always do precisely what it is told. If one makes a mistake in the programming, one may find one's self in the ludicrous position of having instructed the computer to make mistakes thousands of times faster than one could possibly have done by hand.

The computer has been used for three specific functions at ERIC/CRIER. First, the computer-produced series entitled *Published Research Literature in Reading* has been published. Second, the data generated from the use of the classification scheme has been put into machine-readable form. This enables one to use the computer to perform retrospective searches over the data base and also to produce indexes to the collection. Third, the combining of the data from the classification scheme with the citations and annotations on magnetic tape is in progress so that one can use the computer to produce custom bibliographies on special topics.

Preparation of *Published Research Literature in Reading* was a relatively straightforward operation. Once all the citations and annotations for the several thousand titles had been transferred to magnetic tape, programs were written so that the computer would manipulate the data and reformat it so that it would be suitable for output on the high-speed printer which is connected to the computer. After trial runs were made to ensure that everything was working as well as possible, the paper on the high-speed printer was replaced with a continuous form Multilith master. The use of Multilith enables one to make several hundred copies of the material while running the computer only once, and

that results in a terrific savings in money as well as time.

The use of the classification scheme in conjunction with the computer is a bit more subtle. In order to make the searches through the data as speedy as possible, the minimum amount of information is coded and put in machine-readable form. That is, only the accession number of the document is keypunched along with the corresponding data from the classification scheme. In the case of a simple search question, for example, one which asked for all the documents in the collection dealing with mechanical teaching aids, the computer would be instructed to look for all documents under the category "B23" and a printout sheet would be produced which contained all the accession numbers of the appropriate documents. However, the system is more flexible than that. A person may be interested in only those documents which describe uses of mechanical teaching aids. In such a case, the computer would be asked to search for all documents classified under both categories, "B23 AND R27." Fewer accession numbers will be printed out, because the search question has been made more specific. The search can be narrowed down even more by specifying one or more grade levels. In addition, provision has been made for searching on an either/or basis. That is, a search question such as "B06 OR B07 AND R26" is perfectly acceptable. Documents classified under a category which is specifically not wanted can be suppressed. For example, the statement "B06 AND B07 NOT B08" would yield accession numbers for documents classified under both B06 and B07 which were not also classified under B08.

After one has merged the data from the classification scheme with the citations and annotations on magnetic tape, one will be in a position to publish bibliographies over the major cate-

gories by computer. The machine will be instructed to look for documents classified under each category as before; but instead of printing out just the accession numbers, it will print out the entire set of citations and annotations in addition to the numbers. These custom bibliographies will also be printed on Multilith masters so that multiple copies can be made. It is the intention to supply an index with each of the custom bibliographies. This index will consist of the accession numbers of the documents in that particular bibliography listed under each of the nineteen grade levels contained on the classification scheme. The computer is being used in the manner described earlier to generate the numbers for these indexes.

The publication of custom bibliographies will be more difficult than proj-

ects undertaken in the past; therefore, it will probably take a little longer. However, thinking goes beyond that point. It should be noted, for example, that one will have the capability of producing custom bibliographies, not just over the major categories of the classification scheme but over any combination of categories, and at some point one might wish to do that. On the other hand, it is a maxim of information retrieval that one gets back from a system no more than is put into it, and it may become necessary to develop a more detailed thesaurus of descriptors or classification scheme for the field of reading. When that time comes, one will look forward to participating in order to continue to develop more efficient methods for information retrieval by computer at ERIC/CRIER.

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