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ABSTRACT

A collection of 28 papers deals with reading in various parts of the world. The following countries are represented: Australia, Canada, England, France, Germany, India, Iran, New Zealand, South Africa, Sweden, and the United States. The papers are organized under four main headings: (1) Developmental Reading: This section discusses reading readiness, reading instruction, automation, and programing. (2) Reading Problems: Topics included are educational and environmental causes, psycholinguistics, mental capacity, and psychological and motivational problems. (3) Research Contributions: Research reports and research reviews are presented on such topics as teaching methods, comprehension, listening, and children's language, and (4) Challenges for the Future: This part concerns the future of reading education in general and the challenges in specific countries in particular. Tables and references for individual papers are included. (This document previously announced as ED 059 007.) (AW)

IMPROVING READING ABILITY AROUND THE WORLD

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Editors

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Foreword

IN THIS AGE when so many conflicting ideologies are propounded so aggressively by various segments of the world's population, the development of maturity in language skills takes on increased importance. Few would question the postulate that language is, perhaps, the only means by which man builds a meaningful model or construct of reality and existence. And again, it is possibly the most efficacious means by which man can react to, adjust to, and control and/or shape his environment. Furthermore, language is the only means by which man can apprise others of his perceptions of an object, a relationship, an event, or a situation.

What is a citizen's responsibility to society? A major responsibility of the world's citizenry is to appraise the environment in which they live, to decide upon a course of action through logical reasoning, and then to apprise contemporaries of their decisions and/or judgments. Upon this premise—that the communication process is an essential characteristic of democratic forms of government which demands of its citizens the ability to communicate effectively and with insight and critical analysis—it follows that reading, one of the facets of the total language arts spectrum, is and will remain one of its most important and indispensable phases.

Through reading, more than any other phase of the communicative process, the responsible citizen can analyze a more varied and clearer record of past events, a writer's perceptions of current events, and can ultimately build a valid construct of reality and existence—his environment. Through reading (a broad definition is suggested) the perceptive citizen can determine the role he must play in his own social group; the community in the state or province; the state or province in the nation; the nation in world affairs; and, during some morrow, the world in interplanetary litigations.

The IRA planning committee for the World Congress, which was held in Sydney, Australia, in August, 1970, was cognizant of the necessity for *world literacy*. A superficial perusal of the papers contained in these proceedings attests to each author's concern for and dedication to "Improving Reading Ability around the World." A careful reading and study of these papers reveals the organization categorized under the following headings: Developmental Reading, Reading Problems, Research Contributions, and Challenges for the Future. It also becomes apparent that each country represented at the Congress selected its most astute scholars to explore with the audience their perceptions of reading

problems as found in their countries, as well as suggestions for the ultimate improvement of reading abilities.

An invitation is extended to all to thoughtfully read the papers contained in this volume. It will be a provocative and enriching experience.

Donald L. Cleland, *President*
International Reading Association
1970-1971

Contents

Introduction

TO A GREATER EXTENT the problems of the world concern us all. We can no longer ignore those who live in another part of the country, in another nation, or on another continent. We have to face one another's problems, share them, and seek solutions on a common worldwide basis.

The ability to read is an indispensable element in life in every corner of the world. The illiterate does not experience individual and social life fully. The struggle against illiteracy is one of the most gigantic and demanding tasks of our present generation. And this multifaceted task concerns all of us.

It involves regional and global campaigns for the eradication of illiteracy as well as intensive work to raise the standard of functional literacy around the world.

World congresses on reading are indeed paramount instruments for the International Reading Association in realizing its purpose of promoting "the development among all peoples of a level of reading proficiency that is commensurate with each individual's unique capacity."

The Third IRA World Congress on Reading, held in Sydney in 1970, had as its theme "Improving Reading Ability around the World." This theme remains appropriate in view of the present world situation within the field of reading and IRA's far-reaching objectives for its activities. The papers presented at the Congress also covered a wide area—from discussions on reading problems of a practical nature in various countries to research contributions and challenges for the future, with a global perspective in mind.

Lack of space has made it necessary for us to be extremely restrictive in our selection of contributions to be included in this publication. We sincerely hope, however, that this volume will permit readers to experience in some part the enthusiastic international spirit exposed at the Congress, to gain new insights and inspiring ideas, to profit from the knowledge and wisdom extended by the speakers, and to reach our common goal—the continuous improvement of world literacy.

Eve Malmquist
Dorothy Kendall Bracken
Editors

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.

DEVELOPMENTAL READING

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An International Challenge

On December 13, 1967, the United Nations adopted Resolution 2306 designating 1970 as the First International Education Year. At a meeting in November of the following year, Unesco's member states were invited to launch programs to study and appraise their current educational situations, increase their financial resources, and eliminate discrimination. In implementing these programs, the states were urged to focus attention on eight aspects (*5*):

> 1) functional literacy for adults; 2) equal access of girls and women to education; 3) training of middle and higher level personnel for development; 4) democratization of secondary and higher education; 5) transition from selection to guided choice in secondary and higher education; 6) adaptation of education (both general and technical) to the needs of the modern world, especially in rural areas; 7) development of educational research; and 8) preservice and inservice education teachers.

It seems especially fitting that the Third World Congress of the International Reading Association convened in 1970 to consider further the role and function of reading in our contemporary world. The purposes of the Association are uniquely bound to educational advancement, for literacy forms the basis on which further development rests. These purposes are 1) to improve the quality of reading instruction at all levels, 2) to develop an awareness in our citizenry of the impact of reading, 3) to promote the development among all peoples of a level of reading proficiency that is commensurate with each individual's unique capacity, and 4) to sponsor conferences and meetings to implement the purposes of the Association. It is in relation to the first of these—the improvement of reading instruction—that the following remarks are presented against an international setting.

Developmental reading

The term *developmental* refers to an evolutionary change in character through successive periods, a change which results in a better, fuller, or

more useful stage of advancement in order to determine the direction of change or the desired stage of arrival for complete development, an ideal model or prototype must be created or accepted to serve as a standard. *Developmental reading*, as defined by Harris, applies to "activities . . . in which the main purpose of the teacher is to bring about an improvement in reading skills—activities in which learning to read is the main goal" (*9*). In essence, all teaching of reading could be considered developmental in that instruction ought to proceed from where an individual is and continue forward to upgrade his stage of development to a higher level, assuming that progressively higher stages of development are defined and that means of achieving them have been determined.

The theoretical construct of the reading process and the stages of development that indicate progress toward maturity in reading have received considerable attention in recent years. One of the first such analyses was described in 1960 by Gray as "Major Aspects of Reading." The four aspects which he analyzed were word perception, which involved "the arousal of both meaning and pronunciation associations"; comprehension, which involved "a clear grasp of the meaning of what is read"; "the reader's reaction to and evaluation of the ideas secured"; and the assimilation of the material, which is "achieved by the fusion of the new ideas acquired through reading with previous experiences" (*8*). This description was later amplified and refined by Robinson in 1966 (*12*).

The recent IRA publication entitled *Theoretical Models and Processes of Reading*—dedicated to the late Jack Holmes—presents a compilation and critique of the several reading models which have been devised. In this volume, Carroll presents a lucid description of the nature of the reading process based upon current knowledge regarding the state of the art; he describes learning to read in eight stages (*1*):

1. The child must know the language he is going to learn to read.
2. The child must learn to dissect spoken words into component sounds.
3. The child must learn to recognize and discriminate the letters of the alphabet in their various forms (capitals, lowercase letters, printed, and cursive).
4. The child must learn the left-to-right principle by which [English] words are spelled and put in order in continuous text.
5. The child must learn that there are patterns of highly probable correspondence between letters and sounds, and he must learn those patterns of correspondence that will help him recognize words that he already knows in his spoken language or that will help him in determining the pronunciation of unfamiliar words.
6. The child must learn to recognize printed words from whatever cues he can use—their total configuration, the letters composing them, the sounds represented by those letters, and/or the meanings suggested by the context.

7. The child must learn that printed words are signals for spoken words and that they have meanings analogous to those of spoken words. While decoding a printed message into its spoken equivalent, the child must be able to apprehend the meaning of the total message in the same way he would apprehend the meaning of the corresponding spoken message.
8. The child must learn to reason and think about what he reads within the limit of his talent and experience.

These components of the reading process are operative for readers of any age—not just children—and of any language, though obviously left-to-right movements would need to be adjusted according to the nature and the structure of the language. In his Unesco study, Gray analyzed eye movements of readers in several languages—three alphabetic languages in which lines are read left to right (Thai, French and English); three other alphabetic languages which differed widely in the type of letter used (Spanish, Burmese, and Hindi); three alphabetic languages in which lines are read from right to left (Arabic, Hebrew, and Urdu); three Oriental languages with different types of characters (Chinese, Japanese, and Korean) which were printed in horizontal rows because of the limitations of the camera; and good and poor readers of Yoruba (a native Nigerian language) and of Navaho (American Indian). The eye movement records from these various readers showed the following (7):

> the general nature of the reading act is essentially the same among all mature readers. . . .
>
> The mature reader has mastered the basic attitudes and skills required for good oral reading and fluent, thoughtful silent reading. Irrespective of the form and structure of the language, these attitudes and skills include a thoughtful reading attitude, accuracy and independence in recognizing words, a reasonably wide span of recognition, the regular forward movements of the eyes along the lines with only such regressive movements as are necessary, the accurate return sweep of the eyes from the end of one line to the beginning of the next, the fusing of separate words and groups of words into the ideas they represent, and the ability to interpret those ideas.

If both mature readers and those learning to read utilize similar basic skills and attitudes and if Carroll's eight stages are accepted as a fair estimation of the reading act, the problem for teachers then becomes the implementation of these steps into an instructional program. While these stages are generally accepted and supported by research, their sequence is still a point of argument. The order in which Carroll presented them is supported by those who wish an early decoding emphasis, whereas others who prefer to use configuration as the initial step would reorder the sequence and place item 6 as the second step, followed by 7, 8, 4, 3, 2,

and 5. Ultimately, mature readers read whole words at sight; it is only when the word is unknown or unusual that a rate slows down and individual letters within the word are noted. Whatever word recognition techniques the reader possesses are then brought into play, and he figures out the pronunciation of the word or an approximation which later may be checked with the dictionary.

Pupils who are being taught to read, regardless of their age or the sequence by which the stages are presented, will need special help and exercises if at any stage progress is not made. In designing a developmental reading program, it is important that instruction be based upon the knowledge which research and experimentation have provided so that aspects can be included to prevent such blocking and facilitate learning.

Word recognition. Certain important questions need to be asked if an instruction is to be effective. The first relates to word recognition. How does an individual learn to recognize a word in his own language? What cues are important to him? Recent studies by Bishop (*3*) indicate that subjects who were given training in the sound-letter correspondence were superior to those who were given whole-word training in learning eight words in a new language (Arabic) and then were expected to transfer their method to the learning of other new words in the same language. The results showed the fewest trials were for the letter group, the next for the word group, and the largest number of trials for the control (untaught) group. Within the word group were subjects who had learned the new words by transferring their knowledge of letter correspondences which had been figured out during their word training. They did as well as the letter-trained group. The implication is clear that readers need sound-symbol relationships to apply when learning new words. Teachers have long known that bright students learn to read by noting and applying such correspondences without waiting to be taught. It is how preschool children who have ready access to television also teach themselves.

In another set of experiments, the results suggested that there may be an advantage when learning to read English in developing a "set for diversity" by initiating reading with less regular patterns rather than maintaining a similarity in endings or in other ways preserving the single variable (*10*). By having such experience in his early learning, a pupil thus anticipates the variability of vowel sounds and expects to look for cues that will help him decide the exact sound represented in the word he wants to know.

Other questions relate to the order of introduction of the components of the recognition system. At the present time, there is no research that indicates the superiority of any one scheme or sequence over another. My

conjecture is that the sequence is not the crucial element; it is the fact that there *is* a sequential, planned order which the teacher knows and uses that makes the difference.

Comprehension. Once the words are recognized, how do skilled readers process the language to comprehend at various depths material they can reduce to speech or recognize during silent reading? Comprehension is based on the reader's meaning vocabulary; and those who possess a large, varied, and accurate knowledge of word meanings have a superior background to apply when they read. One of the objectives of the Head Start programs for preschool children in the United States is to develop meaning vocabularies—to give children the concepts and labels for the concepts that will increase their store of word meanings as preparation for reading. Some secondary schools have instituted courses in vocabulary building for college bound pupils so that they can improve their ability to cope with the range and amount of reading material they are expected to master.

Technical vocabulary in science, proper names and abstract concepts in social studies, mathematical terms, and literary devices are extensions in the content subjects of the same need for the reader to possess an adequate meaning vocabulary.

Beyond the meaning of words in context is the necessity for the reader to grasp meaning units of increasing size—phrases, sentences, paragraphs, sections, chapters, and even whole books. He must be able to see the total in perspective and to understand how the parts contribute to that total. Too often pupils concentrate on the minutiae of a single part and omit seeing this part in relation to the whole—like the blind man and the elephant, each of whom thought he knew what the elephant was like even though he had only felt an ear, trunk, or tail.

To understand the whole requires the ability to see the skeleton, the author's framework around which he organizes his ideas. Knowing the relationships denoted by various connectives, such as *however, nevertheless, moreover, in addition to, furthermore, consequently, meanwhile, but, and, for,* and *if,* allows the reader to comprehend the flow of thought from paragraph to paragraph and to see the way the ideas fit together. For textbook material, the organization is often logical, with main ideas supported by their details presented in a hierarchy of importance or sequential order. Other types of materials may be presented in chronological order, such as that found in histories, biographies, or a mystery story; in a dramatic style, as in a play; or in a psychological manner, designed to capture the attention of the reader immediately, then through flashbacks in a story or by an abrupt shift to another pattern, continues

the presentation in less dramatic fashion. Pupils who demonstrate the ability to see the total have arrived at the seventh level in Carroll's first list.

The eighth level requires the pupil to "reason and think" about what he reads. Reasoning and thinking will be necessary for the pupil to interpret beyond the lines of print in order to comprehend what the message really is. The several requisite skills have been differently defined by reading authorities, but generally include sensing the author's purpose; finding causes, reasons, or agents; determining the mood or tone of selection; analyzing characters and their motives; noting relationships not specifically given; drawing conclusions and making generalizations; and speculating between events and beyond the date. Each of these aspects of interpretation needs attention in the instruction given pupils, and teachers can implement the aspects by asking the kinds of questions that will require pupils to relate the literal message to their previous knowledge and to other information as they interpret the ideas.

Another aspect of the "reading and thinking" stage is that of evaluation or critical reading, which involves judging the value, truth, or quality of the statements against a known standard or norm. For literature, this act entails judging the theme, plot, characters, style, setting, and ethic of the selection, as well as the author's purpose for writing it. For science, this process includes evaluating the clarity, accuracy, recency, and applicability of the ideas; for social studies it means accuracy in detail and in perspective, objectivity in presentation, and clarity in the descriptions and graphic representations.

A crucial aspect of critical reading concerns the detection of propaganda and an analysis of its concepts and arguments. The seven techniques usually employed have been delineated as bad names, glad names, transfer, testimonial, plain folks, band wagon, and card stacking. Each should be identified, analyzed, and evaluated according to criteria previously mentioned—accuracy, perspective, objectivity. A fruitful source of material for study in the United States is provided by advertisements in magazines. Our twelve-to-fourteen-year-olds delight in analyzing these and detecting the devices used; this exercise forms a useful background for the detection of political propaganda later in their school careers. Another fruitful source for study is the cartoons in the daily newspaper and weekly news magazines, though many of these are too sophisticated for the elementary school child.

At a higher stage of comprehension is the reader's reaction, both mentally and emotionally, to what he has read. This reaction may take the form of amusement or laughter, or a subtle, less obvious appreciation;

it may evoke tears, storming, or ranting and raving; it may stimulate letters to the editor, and it may set forth a barrage of rebuttal. Writing that makes a difference to the reader may have very tangible results—from fertilizing the needy earth or building a better home to reading *Consumer's Guide* or teacher's manuals. In fact, some writing is meant only to be applied; just reading it is insufficient to gain its full import.

Intellectual reaction may also be clothed in appreciation of the style of writing, the unique idea, the tidy arrangement of arguments, the vivid figures of speech, and the originality of the organization. Critical reading may also evaluate not only the author's purpose for writing but the applicability of the material to the reader's current purpose. As a result, he may form opinions on the basis of his reading. While factors in opinion-formation are complex, it is certain that what one reads does influence his ideas; else why promote education at all?

The highest level of reading and thinking is the reader's assimilation of the message into his background, the integration of the ideas with his own previous concepts, thus making the reading integral part of his total personality. The evidence of this assimilation is found in his behavior, performing an act, making explanations, purchasing a product, voting a certain way, making a blueprint or a dam or a dress, playing a game, or arriving at his destination. His changed behavior may be reflected in his mental health, his moral conduct, his social poise, his health and safety, his conversation, and in his self-concept, as he gains confidence in his personal worth.

Thus reading comes full circle—from ignorance to knowledge that results in changed behavior, which is the central purpose of education or the "leading out" that the word itself means. The reader who asks "What does this mean to me?" is asking the important question from his reading, and the answers translated into action show the effect that reading can have. "Reading," says Francis Bacon, "maketh the full man."

The international challenge

A major purpose of education is to perpetuate and advance the culture. In developed countries, those that utilize their resources optimally to provide a high quality of living for their inhabitants, education plays an important role. Commerce is based on money, requiring an abstract system of recordkeeping; communications are written rather than spoken, providing an opportunity to restructure and clarify messages and to serve as records of the transaction; and technology plays an essential role as the basis for economic development and quality of living (*1*).

In some developing countries, technological changes have resulted in transportation shifting from oxcarts to 747s in one giant leap, while the customs and traditional ways of behaving remain static or move forward only by evolutionary rather than revolutionary means. This lack of synchronization creates problems that must be alleviated, for the level of development depends upon the ability of the society to utilize the results of technology. Such use is based not on the scientific knowledge that created the goods but upon the level of the arts and sciences in the broadest sense that recognize the benefits to be gained from utilization.

The underdeveloped countries, those generally recognized as making less than optimum use of their resources, are faced with poverty, hunger, and disease, which limit their opportunities for national and personal satisfaction.

Literacy. The role of literacy in educational development is paramount. While the percentage of illiteracy in the world has declined to 33 percent, the actual number has increased from 700 million to between 740 and 750 million and rises steadily each year (*6*). While literacy figures are difficult to compute, for different standards are used in definition, the enormity of the problem is apparent.

A question must be raised regarding the value of adult literacy when no reading materials exist. This condition is also true for children, for in some instances little or no reading materials are provided for their use. Consider the problems faced by an underdeveloped society in writing and printing books (assuming a written form of the local vernacular exists), announcing their availability to accept orders, then delivering the books by means of slow and unreliable transportation methods. Factors like the size of the country, the distribution of the population, the topography, and transportation routes and means must be balanced against the apparent economic gains and the contributions that literacy can make to promote national unity, provide for individual participation in government, and enhance the personal living of the people.

Another value gained from eradicating adult illiteracy may be the emphasis that is given to the education of the young. Adults in a society determine how the young shall be educated, allocate or pay the costs for such education, and nurture and staff the schools. If strides can be made in literacy for adults and children alike, the level for the nation as a whole should show a marked improvement.

In this connection, the United States, too, must make a major effort to teach adults and out-of-school youth to read. The International Reading Association recently sponsored three workshops in adult education, under a United States Office of Education grant, to train teachers for adult

literacy programs. These workshops were held at Hofstra University, Colorado State College, and at Florida State College. Perhaps the participants will develop programs in their local areas. Hopefully, their influence will extend widely and result in many adults' learning to read.

Language. A second problem in promoting the teaching of reading internationally depends upon language. If a person already can read in his native tongue, yet it is not the *lingua franca* of the area, he might as well be illiterate, as many a world traveler can corroborate. What shall the language of instruction for an area be? In the United States, this problem arises in areas with a concentration of Spanish-Americans. In some cities, special schools are designated for teaching English as a second language; pupils are transferred to regular schools when they have learned to speak English. In other areas, instruction in the first three grades is conducted in Spanish as pupils are learning to speak English; then in grade four instruction is given in English.

In some countries, the language of instruction, particularly at secondary and higher levels, is that of the former colonial power. Here, entrance to these levels may be restricted to those elite groups who have the opportunity to learn the language. Entrance also favors those students who are apt in languages, but requirements may work to the detriment of students in engineering, who may not have the lingual ability and thus miss out in competition for places in higher education. The amount of time spent on foreign languages to prepare pupils for this system may also force out of the curriculum preparatory courses for pursuing technical subjects at higher levels. On the other hand, to require instruction in the language of the land may restrict greatly the resources available or necessitate the translation of technical materials. Such translation would need to be continued until such time as the country itself developed its scholarship to a level that would become self-sustaining.

Compulsory education. A related problem is that of compulsory education. Can a nation divert its educational resources to provide compulsory education for all, even to a level of four-to-six years, and ignore needed improvements at secondary and higher levels? Certainly a parallel attempt must be made if primary education is to serve as the base from which pupils advance to higher levels, but the establishment of compulsory education may need to await the preparation of the teachers necessary to make this goal an actuality. Yet teachers are trained at higher institutions of learning; so the cycle continues, and planning must be done with foresight and realism.

Placement. Still another problem concerns the expectation in many countries, not only those labeled "underdeveloped," that education pre-

pares one for working more with the mind and less with the hands. Such attitudes are difficult to dispel, and the idea of an engineer, farmer, or craftsman as a university graduate is a difficult image to project. One practical solution suggests that industry and other employing institutions set up their own training systems, as is being done in several countries including the United States. But the problem persists when a country produces an excess of civil servants and other white-collar workers at the expense of blue-collar workers, technicians, and craftsmen.

A means of circumventing the problem created by literacy has been to upgrade farmers and villagers by *oral* means, rather than literacy training. Thus the level of the community is raised without draining off those who would accept and profit from the training and be lured to the metropolitan areas with their nonexistent clerical jobs, leaving the individual prey to frustration and disillusionment. The crux of a solution lies in pointing out to the rural population the opportunity to improve their area by utilizing their newly acquired skills. This rather practical use of education calls for a different set of goals and standards of achievement. It requires an acceptance of the belief that education should be used as a means of improving one's ability to produce rather than as means of avoiding work.

Teachers. A shortage of qualified teachers poses still another problem. Adaptations must be made to increase the personnel for *teaching* without increasing the number of *teachers.* Hospitals in the United States introduced nurse's aides, teenage candystripers, Gray Ladies, and other semiprofessional and volunteer groups to counteract a shortage of registered nurses. Likewise, schools have absorbed teacher's aides, volunteer tutors, and lay readers of student papers to alleviate the pressure on regular teachers. Some adult literacy programs utilize "block mothers" in the ghetto. They go regularly for their literacy lessons and then transmit their knowledge to the other mothers in their block at a regularly scheduled meeting in someone's home. Iran has developed "tent schools" for nomadic tribesmen, where tents and teachers move with the tribes and provide daily open-air education. Australia's radio schools are another adaptation to the exigencies of the situation, and other ingenious methods need to be devised if all segments of the population are to be reached.

To increase the teaching force some schools have experimented with correspondence courses, and married women whose families are grown are enticed to return to teaching or to become qualified. In some countries where women are still denied equal education, their contribution as homemakers and mothers in the cultural education of their children needs to be recognized. According to Neff (*11*), mothers' influence is "per-

haps even more significant than the influence of the teacher on the student after he is in school."

Increase in *teaching* can be accomplished by introducing prepared materials that free the teacher for personal contact with pupils—materials like taped lessons, programed books, or teaching machines, where the learner can repeat until he understands the item, where the taped teacher has infinite patience, and where no one need know how many repetitions a pupil requires for mastery.

New ideas and new dimensions are required if education is to serve contemporary needs. Traditional concepts must be revised, as universities charter world cruises; as secondary schools operate without buildings (like Philadelphia's "School on the Parkway"); as elementary pupils learn in museums, libraries, zoos, and factories; and as farms, industries, and government offices become scenes of study. Yet, underlying these innovations is the presupposition of literate pupils: reading is mandatory.

The role of IRA

The problems of developmental reading that beset the nations of the world, from literacy to propaganda analysis, can be solved only if direct attempts are made to do so. The challenge is clear to an international organization whose purpose is to improve reading. What are realistic contributions that the Association can make?

1. IRA can act as a clearinghouse for the free flow of publications relating to reading. A library of research studies and reading materials from abroad has already been started. Members can assist by sending pertinent reports.

2. Members of IRA in any country can submit articles for inclusion in the journals. The editor of the *Reading Teacher* and the *Journal of Reading* can be encouraged to focus one issue annually on international problems.

3. An International Planning Committee, composed of one representative from each nation having at least ten (or a specified number) IRA members could convene annually to make recommendations for international activities of the Association.

4. IRA could initiate or cooperate with comparative studies in reading, similar to the six-year, twelve-nation *International Study of Achievement in Mathematics* recently reported by Torsten Husen (2). A similar study in reading was planned to start in 1970 under the direction of Robert Thorndike as part of the International Project for the Evaluation of Educational Assessment.

5. IRA could arrange for a two-way flow of member scholars and classroom teachers, perhaps with affluent councils or a state or regional group to sponsor a counterpart from abroad and to provide professional and social contacts for the visitor.

6. IRA should include on its staff, as soon as practical, a full-time international field representative who can stimulate communication on an international scale.

7. IRA should continue to provide the professional experiences inherent in its educational tours and develop additional opportunities, such as the Britain-to-America tour which was planned to coincide with IRA's Sixteenth Annual Convention.

Conclusion

The need is apparent; the International Reading Association stands ready with professional competence and willing members. Only the stimulus and planning are lacking. The future will belong to those who make it; an invitation is extended to all to work together to make the possible a reality.

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Readiness Is All

On contemplating what I should say to the Third IRA World Congress luncheon group on the topic "Readiness is All," two thoughts influenced me: First, a luncheon speech would not need to be too erudite since the guests would be in a good humour and, therefore, disposed to be tolerant; and, second, the date of the luncheon falls on a Sunday. This latter implied, I thought, that I could be hortative rather than expository, that I could preach (a little) rather than expound.

In this spirit I presented my luncheon theme: two texts from the gospel according to St. Jerome. The first is well known, though often misquoted; taken from the 33rd page of the second chapter of the first book in education, it reads:

> any subject can be taught effectively in some intellectually honest form to any child at any stage of development.

The second text, less well known, is from the second book on education, the second chapter, and the 29th page, where the sage writes thusly:

> the idea of "readiness" is a mischievous half-truth.

The relevance of both statements to reading is patent, for a good deal of what Jeanne Chall called the "great debate" in her superb book is as much concerned with the difficult question "When do we begin?" as with issues of method.

If you search the literature, both historical and current, it is easy to find arguments, and even some evidence occasionally, for beginning the teaching—or learning—of reading at almost any age. Thus John Dewey, to quote the gospel of another age, is reported by Huey as having advocated age eight as early enough to begin reading. Says Huey, ". . . a certain mental enfeeblement comes from too early an appeal to interest in the abstraction of reading." But John Stuart Mill, if we can believe his biographer, was reading Greek when he was three and warmly recommended similar exercises for all, including the children of the poor.

I do not propose to go over the old arguments, with which most persons are familiar. Rather, I raise three or four questions which suggest, to me at least, that the issue of "readiness" has often been wrongly posed, not least by Bruner himself, and that Bruner's own statement (the idea of readiness is a half truth) is itself no more than half a truth. (I leave it to the mathematicians to work that out!)

It seems to me (more or less in agreement with David Ausubel) that "readiness" for reading, as for other learning experiences, is used in two quite distinct ways: as "a developmental mode of cognitive functioning" and as "possession of particular subject matter knowledge or subject matter sophistication for particular learning tasks." Put more simply, if less precisely, we sometimes use readiness to mean that a child has the capacity to carry out a particular learning task or has reached some kind of stage or level of development and sometimes that he has sufficient previous knowledge or skill to carry it out. This example—a noncognitive one, to be sure—illustrates the point: An hour or so ago I might have said, "I am ready for lunch," and I could have meant either (or both) that I was in a particular physiological condition or that I was prepared in the sense of being at the luncheon with the necessary accoutrements before me. A third use of readiness is also to be discerned (I might mean "I want lunch") in the motivational sense; and this, too, cannot be overlooked in assessing readiness to read. Take another example, this time cognitive: when we say a child is "ready" to learn the techniques of infinitesimal calculus, we may be saying that he has certain cognitive capacities which we can define or that he has already learned a set of prerequisite skills, such as symbol manipulation and arithmetic. You may mean both, but the distinction is valid.

The first use—the developmental mode of cognitive functioning use—carries with it some notions of a genetic, maturational character, although I would wish clearly to distinguish between development, as such, and maturation. (Development implies both maturation *and* learning, a point often neglected in discussions of readiness.) But the general point is clear: this view of "readiness" has within it the assumption of some kind of neural change as a result of age and learning. This poignant little verse illustrates:

> Who takes me from my warm, warm cot
> And sits me on the cold, cold pot
> And makes me wee when I can not,
> And sometimes smacks my little bot
> Me mother!

Just as a child can be toilet trained when he is ready (i.e., has reached

the necessary anatomical and neurophysiological level) so will he learn to read when he is "ready." The other use (possession of particular subject matter knowledge or subject matter sophistication) carries with it no such connotations. It implies simply that any learning has certain learning prerequisites.

I would suggest that learning to read implies *both* kinds of readiness, but in much of our research work on "readiness" we have tended to focus on one definition or the other. From this tendency stems a great deal of our confusion about reading and also a great deal of the heated argument.

I hope it is not too much of an oversimplification to suggest that reading schemes based on "meaning emphasis" lean heavily to a "cognitive development" definition of readiness, while those emphasizing "coding behaviour" are more concerned with the "previous learning" aspects.

In general, the well-prepared readiness programs which are part of most good schemes tend to emphasize the same things. Thus, if you take Chall's neat definition of "global" and "specific" readiness programs, the "global" schemes tend to consist of materials designed to strengthen and support developmental characteristics, while the "specific" are designed to teach certain perceptual and other skills which are prerequisite to the basic primers. To this point I have no real quarrel, for, in general, most children in our middle class schools learn to read pretty well because each of the approaches contains within it a good deal of the other: development tends to be strengthened and supplemented by coding type programs, while children being "made ready" for a "meaning approach" learn to use coding techniques effectively—even if the effect is purely incidental in both cases.

There is another aspect which concerns me: What are we readying children for? Some light has been thrown on this aspect by two quite different kinds of research: work with disadvantaged children and work with children in non-Western societies. The vice-chancellor of my university, a distinguished scholar of language, has pointed out that linguistics reached a plateau some twenty years ago because most of the hard research work had been carried out in Indo-European languages, and not until serious comparative studies of other systems began did we experience the major surge forward which now characterizes modern linguistics. I suggest a similar situation has been reached in reading and that comparative studies are beginning to challenge us and stimulate deeper understanding of readiness, the reading process itself, and how children learn to read.

Why do I say this? Let me remind you of some recent interesting research findings which have emerged because we have begun to ask, "readiness for what?" I would suggest that the reading task to be accomplished by children from different sociocultural groups implies kinds of readiness which are not, as a rule, taken into account either in the readiness material or in the primers themselves. You will remember that Harry Passow, writing about disadvantaged children, said:

> That the typical preprimer is oriented towards the middle class suburbia where (as Klineberg says) "life in general is fun, filled almost exclusively with friendly, smiling, people, including gentle and understanding parents, doting grandparents, generous and cooperative neighbours, even warm-hearted strangers" has been pretty well established.

If you doubt the half-truth of this statement, look at the beautiful middle-class material displayed for us by most publishers:

> That the language pattern and oral vocabulary of disadvantaged children differ substantially—from 20 percent to 50 percent—from the standard primary grade word lists, used as a base in such books, is a finding well established by empirical research. What the real consequences are on the child is still more speculated on than really known.

It is not only a question of vocabulary and usage. It is also a question of situations and environment and, more subtly, of content. Even the little stories are familiar themes for the middle-class child. I hasten to add that a great deal of the new material in such imaginative programs as the Great Cities Project includes readiness material in an attempt to provide the learning prerequisites, in terms of content, which will make the children "ready to learn" to read; *also* included are primers which children are able to read *in terms of their readiness.* This great theoretical and practical step says that you must not only help children to be ready, you must also provide learning experience for which they *are* ready in every sense. I could multiply examples of this kind which are in many ways concerned essentially with the second kind of readiness.

Space permits mentioning only one or two different kinds of studies. There is little need to detail the evidence that is beginning to come in from comparative studies related to the work of Piaget and Bruner except to say that it is clear enough that they have relevance to the cognitive tasks involved in reading; that the rate and even the nature of cognitive development changes from society to society and from child to child within each society; and that more work needs to be done. In my own work in Thailand, we tested some 3,000 children with readiness materials

of the second kind (they were essentially specific and related to perceptual skills which children had been taught, although the materials also included some developmental type tasks). We were able to show that "readiness" in this sense was quite directly related, not only to the familiar variables of social class and all that goes with this but also, to the level of "cognitive development" as shown by other measures. Further, when we tested reading skill in higher grades, we found that performance was directly related to the available conceptual structures (village children performed more poorly in tests of comprehension than city children, even when the effects of language as such, teacher quality, and social class were statistically eliminated).

The results beginning to emerge from work in New Guinea are even more intriguing. Here Max Kelly and Bob Huntsman, of the School of Education at Macquarie University, have been working with Piaget-type and Bruner-type materials with both out-of-school and in-school children in different linguistic areas. Among other things, there is good evidence to show that cognitive development, in both Piaget and Bruner terms, is directly related to the structure of the language spoken by the child (there is apparently a slower development, even a somewhat different development, when a language is less "rich" in those conceptual structures subject to measurement). Moreover, this finding is reflected directly in school performance in reading and other areas even though the school language is English. This is much the same phenomenon as that reported by Passow to which I have already referred. Under such circumstances may I repeat the question—readiness for what?

I would like to raise another question related to readiness and purpose. This question relates to orthographies other than one's own and to the relationship between language and orthography. Take Japanese. The old Chinese script has no phonetic relationship *whatsoever* to the spoken language which children use. Are they "learning to read" in the same sense as children "learn to read" in Western type alphabets? What is the readiness here? Some work going on at N.I.E.R. in Japan, comparing reading in this script with reading in newer scripts, including Western, suggests that the reading process is quite different—and, hence, so is the readiness.

Let me return to my texts stated at the beginning. I think, for reading at least, it is reasonable to accept the first text: you can teach some reading skills, in some intellectually honest fashion, to children at almost any age after the first couple of years; whether you *should* is another question. But I challenge the second statement—readiness is a mischievous half-truth—by saying it is not even that unless you are prepared care-

fully and precisely to define what you mean by readiness, both in terms of the concept itself and in terms of its aims. And yet I think I would agree with Hamlet (although he speaks of a graver subject, his remarks apply to reading):

> If it be now, 'tis not to come; if it be not to come,
> it will be now; if it be not now, yet it will come:
> the readiness is all.

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Prereading Programs: An Examination of Some Guiding Principles

To many teachers the term prereading has a recognized and established meaning. Prereading programs aim to develop certain skills related to reading generally, rather than specifically. There is a widely held belief that most children beginning school need a program which will develop visual and auditory discrimination at an elementary level. Most of these programs recognize that reading is related to thought and to language, and so there is opportunity to interpret pictures and to extend vocabulary and sentence structure. Attitudes are important, and some attention is given to building in children an interest in learning to read and in listening to stories.

In spite of a fairly general acceptance of this position there are signs which suggest that this type of program, as prereading, is of limited value to some children when they first come to school. Several reasons can be found to show why such a program is being questioned in theory and modified in part, even though it is unlikely to be rejected in full.

Principles influencing the concept of prereading

Reading, as an important part of the primary or elementary school curriculum, has always been influenced by learning principles, by principles central to curriculum construction, and by principles guiding the design of materials through which content is presented. Change is taking place in these three areas.

1. *Prereading: the influence of learning principles*

Readiness. The terms prereading and reading readiness, as they apply to the first stage of reading, have often been used interchangeably. In view of this, it is somewhat surprising that many children have been given a prereading or readiness program whether they were ready or not partly because of the nature of developmental data which have lacked

the precision necessary for valid and reliable evaluation of a child and his reading skills and partly because of the lack of agreement about just what these skills are and what form they take in their first stage.

The principle of readiness has included those of all round development and individual differences. Prereading programs based on these principles have been programs of some breadth, related to the child and his place in the environment. But currently, there is some concern that breadth has meant lack of relevance to the specific task. For example, the assumption that all children need to spend a substantial part of their first year in school doing discrimination exercises of a fairly elementary level involving size, colour, and shape of objects is questioned. The validity of such an argument holds true for only some children; but seen in the context of readiness and individual differences, its implications must be pursued. Only one example is given here. If readiness is going to be related to the first stage of reading, then there is much work to be done to identify and sequence and to program certain skills of visual and auditory discrimination so that a child's ability, at least on these skills, can be identified when he begins school. The effect of this work will be to tighten considerably much of the perceptual training given in the prereading program. It will mean that some children will move easily and quickly into reading, as it relates to these skills, while others will spend more time building a stronger foundation than a traditional prereading program has ever given in these skills.

Learning through experience. This principle has had a strong influence on prereading programs, for there has been awareness that the learner will use reading only as there is purpose for it and enjoyment of it in the course of his experience. His understanding and interpretation of what he reads go hand-in-hand with and follow his understanding and interpretation of his experience with concrete materials and in play. Talking about what he does, interpreting pictures, and increasing vocabulary have been related to developing powers of comprehension for use in reading.

But there is some thought that experience has not always been used as purposefully as it might be; for if learning through experience is to serve reading, then often there must be a conscious direction and use of that experience to order the child's knowledge, to extend his language and its vocabulary and structure, and to lead directly and specifically to reading. For example, while the language experience approach draws heavily on this principle, in practice it does not always follow through from the child's experience and language to perceptual skills of word recognition.

Examination of these two learning principles, readiness and experience, shows that at least some aspects of prereading programs must be looked at critically; for while the content of these programs may still be relevant to some children, more precision in their application will mean a difference in timing and length of the program for any one child and a closer relationship of early learning to the task of reading.

2. *Prereading: the influence of curriculum theory*

The most important curriculum development of the 1960s was the spiral curriculum, based on the assumption that content is presented best through the ideas which are fundamental to the structure of the discipline. Influenced by the claim that "any subject can be taught to any child in some form that is intellectually honest" (2), there are attempts in most subjects (and reading is no exception) to identify, analyse, and sequence their essential elements. If this work can be done, then there are two possible implications for prereading programs:

> The term prereading must become redundant, for if the basic elements of reading can be identified, analysed, and sequenced so that their simplest form becomes evident, then this form is the content of reading.
>
> Alternatively, prereading, in the sense of coming before the simplest elements of reading, becomes a task of a very general nature with equal relevance to any subject and might take into account abilities, such as control of a pencil, concentration in an activity, and basic spoken vocabulary.

There is evidence of acceptance of the first position in curriculum development in New South Wales, Australia. Structured within the framework of the subject English, the content of reading has been set out in stages of development with skills, understandings, and attitudes general to the overall structure but specific to each stage (3). While the first stage of this curriculum contains much of the content associated with a recognized prereading program, there is the expectation that at least some children beginning school have abilities to read at a stage beyond the first level. On the other hand, there is the recognition that some children may spend a longer time at the first level, building a sound foundation so that there is successful progression to later stages. This, then, represents a direct response, not only to curriculum theory but to the principle of readiness.

3. *Prereading: the influence of materials*

During the 1960s a great variety of materials was produced for prereading activities. Many of the traditional materials for shape, size, and

colour matching and patterning, while still useful, are now being built into programs and basic readers. Tapes and listening centres are making auditory and speaking skills more efficient. Two types of material are considered here.

Basic reading series. Perhaps the most influential of all materials is the basic reading series. Again, an example from New South Wales, Australia, is useful. While it is possible to see in the schools of this state a number of different reading series (some of English, some of North American origin), there has always been an attempt to teach in terms of the Australian culture. Thus, some years ago, the New South Wales Department of Education wrote and published a basic reading series. The first in the series is a prereading book with material for visual and auditory discrimination, comprehension, and vocabulary development. While this series is still relevant, the prereading book is now but one among many of the materials and approaches used at this stage. For example, this year the New South Wales series has been supplemented with a series of caption books (of New Zealand origin) for use in the early stages of reading. Reading a simple book can be an achievement early in a child's school life. For some children these books replace an extended prereading program; for others, the same books supplement the prereading activities.

Programed materials. Materials based on programed instruction are appropriate to those parts of a subject which can be identified, analysed, and sequenced with precision. Examination of learning and curriculum principles suggests that at least some content in prereading, or early reading, can be presented and learned in this way. Yet, there is little evidence of the application of programing to this stage of reading. One of the reasons may be found in the reluctance to impose programed learning on content which is associated so closely with the child's personal development and his activity and experience. Another reason lies in the lack of certainty about what the earliest content and learning tasks of reading should be. To search for agreement on general issues and to work from these to a position of greater surety in detail are now important tasks in teaching reading at this stage.

Prereading: its relationship to reading

Two positions illustrate the lack of certainty in this area.

1. *Reading means recognizing the written form of a language.* Thus, learning to read means learning to break the written code. In its earliest stage this becomes, very largely, a mechanical task and relates most directly to perceptual tasks of visual and auditory discrimination. Such a prereading or early reading program would deal with those aspects of

word, phrase, and sentence structure which are regular, and the visual and auditory tasks would move from discrimination and recognition of these structures regardless of whether they carry meaning. Programs based on this position are consistent with some linguistic approaches (*4*) and some programs for disadvantaged children (*1*).

2. *Reading means recognizing and responding to the written form of a language.* Thus, learning to read means learning to break the code and learning to understand, interpret, and use that code.

Content and approaches related to the teaching of reading in many schools in New South Wales, Australia, are based on this assumption. At the prereading level a basic reading book is often used, together with the language experience approach. In the basic reader, skills of visual and auditory discrimination and some skills of comprehension can be graded carefully without reference to the child's immediate experience. Language experience teaches and uses those skills, which because of their nature depend on the child's experience and immediate situation. These can be organized and directed only by those in that situation. The careful control over learning which can be gained through the graded exercises cannot be realized to the same extent through language experience. But the graded exercises cannot, by themselves, teach a lively and sensitive response to language and reading. Such responses come from language experience. Essentially it becomes a matter of balance and of finding for each area of content the most appropriate ways which each child has of learning that content.

Prereading programs: a concluding statement

In this paper prereading programs have been examined in the light of some of the principles which influence their content and their application. Examination has shown the need for the task of reading itself to be analysed and its earliest forms identified in detail. There are, of course, many people doing this work, but there is conflict between those who see beginning reading related only to decoding regular word and sentence patterns and who base a prereading approach specifically on this view, and those who see beginning reading within the wider context of language which grows out of the child's experience and which, in turn, enriches it. To define content and approach in terms of the first position will be much easier than to do the same in terms of the second position, where comprehension, interpretation, and attitudes are important. But to accept this position of breadth need not necessarily mean the sacrifice of those tasks of reading which demand precision and con-

trol. Indeed, it seems essential when working within this broader framework to carefully control the more mechanical reading skills, so that the principle of readiness can become a reality in terms of the first stage of reading.

If these things can be done, it is likely that there will be many more first grade children working with books, programs, and listening centres which present reading in ways which are meaningful, interesting, and enjoyable. But no program, however comprehensive, can, of itself, guarantee these qualities. In the final analysis they are realized by the teacher's interpretation and modification of the program to the children in the class. That there should always be room for responsiveness to children and environment seems essential, however precise the structure of content and learning tasks become.

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Variables in Beginning Reading Instruction

Proponents of beginning reading instruction approaches often fail to point out important variables, other than the mechanics of the approach, which contribute to success or failure in beginning reading. Three other major factors—the teacher, the child, and the environment—are infinitely variable and must be given due consideration. Rather than spending energy arguing about the merits one approach has over another for all children in the world, reading specialists might better spend their valuable energy determining how to show beginning reading teachers how to improve their skills in the diagnostic teaching of reading so that the right beginning reading approach or combination of approaches is used at the right time in the right way with individual children within the classroom.

The teacher

Each teacher of reading looks at reading from his own bias, point of view, or pair of glasses, so to speak. Each reader of this article brings to this printed page his own point of view concerning beginning reading and weighs his own vicarious and practical experience, his own conceptualization of reading and reading instruction, against that which he reads. That which is not in keeping with the reader's experience or conceptualization and makes no immediate appeal to his cognitive or affective sensibilities is stored with other information on reading instruction or, perhaps, is rejected outright.

Likewise, the reading teacher, who is told that a particular emphasis in beginning reading instruction is best, may respond passively, critically, or even negatively when he has found other approaches to beginning reading instruction highly successful. Trevor, reporting from New Zealand, for example, has found the language experience approach to beginning reading instruction more effective than approaches emphasizing mastery of the sound/symbol code and flatly disagrees with Chall's con-

clusions and recommendations in *Learning to Read: The Great Debate* which, says Trevor (2), support "a code-based emphasis in beginning reading instruction." On the other hand, Levin, reporting a study he conducted at Cornell University, documents the inadequacies of the linguistic, or word family approach, espoused by Fries, Bloomfield, and certain other linguists, and favors an approach to beginning reading instruction which initially illustrates to the learner graphemic/phonemic inconsistencies.

Which approach to beginning reading instruction, then, might we say is best for Trevor, for Chall, for Levin, for Fries and Bloomfield, and for the many disciples of the approaches which each of these writers advocates? The approach which the individual believes will be most successful in teaching the child beginning reading probably will be the approach relied upon most frequently and in most cases will be the best approach for the individual to use.

Some teachers of reading who have learned the mechanics of a single approach will use that approach exclusively, often failing to determine which approach or combination of approaches is most suitable for a particular child. Teachers bound to a single set of narrowly conceived instructional materials fail to produce optimum results in their beginning reading instruction because the material is unsuitable for meeting the reading needs of all children. The ability of the teacher to choose the best approach or combination of approaches and to utilize the mechanics of the approach as well as to control other aspects of the learning situation will determine the difference between success and failure in beginning reading instruction. Ideally, the approach or combination of approaches used should be one which the teacher can use well, feels comfortable in using, believes will be successful, and which best suits the individual child beginning to learn to read.

The approach itself

Even when the teacher knows which approach or combination of approaches to beginning reading instruction is best, she may find it difficult to provide the kind of instruction she would like to provide for the child. Often the teacher is required to provide instruction from one basal reader series and as a result may neglect to provide the right type of instruction at the right time for a number of children in the classroom. Many teachers of beginning reading have become so dependent upon the guidebook to the basal reader that they would find it difficult to teach reading without it. In other words, the beginning reading approach is

purchased in the form of a basal reader series and is presumed to suit the teaching style of the teacher as well as the reading needs of the child. This approach to beginning reading instruction is roughly analogous to a government health department's demanding that all patients visiting their family doctor receive a shot of penicillin and some sulfa tablets regardless of their illness and regardless of the physician's recommendation and familiarity with the treatment.

The teacher of beginning reading should, of course, be able to provide the type of beginning reading instruction which she feels is best suited to each child in her classroom. The decision as to what approach or combination of approaches to use with a child may be determined after administration of formal and informal reading and reading readiness tests, discussions with the child, and even a trial and error procedure which would eliminate those beginning reading approaches which prove to be ill-suited for the child. While the teacher may decide to use only one approach, she will probably determine that some combination of approaches initially emphasizing both *discrimination* and *meaning* is best. In the discrimination approaches, associations between the symbols of the alphabet and the sounds in speech which the symbols represent are emphasized. In the meaning approaches the emphasis in teaching is upon associations between the sight of written whole words, the sound of the words, and the experience of the child relevant to the words.

The basic approaches from which the teacher of beginning reading may choose can be described as 1) the synthetic phonics approach, 2) the analytic phonics approach, 3) the linguistic approach, 4) the VAKT (visual-auditory-kinesthetic-tacile) approach, 5) the whole word approach, and 6) the language experience approach. While discrimination and meaning are emphasized in each of these approaches, the first four approaches place greater emphasis initially on discrimination, whereas the latter two approaches emphasize meaning to a somewhat greater degree.

The synthetic phonics approach. In this approach the teacher ascribes to various letters and letter combinations the sound which she believes the letters will represent when found in words the child later will be asked to decode. She may, for example, show the child the letters *p, t, s,* and *a* and ascribe to each letter the sound which she feels the letter usually "will say" when found in whole words. After this instruction, the child would be expected to read words like *sat, tap, at, past, sap, taps,* etc., and sentences such at *Pat sat at last.* The child customarily would be guided away from words such as *pa* and *as* which do not follow the sound/symbol generalizations taught. Seldom, however, do the sounds which are ascribed to isolated individual letters appear as such in spoken

words. There is no *tuh* sound when any of the preceding words are pronounced, for example. This fact can be further illustrated by pronouncing aloud the words *tap* and *pat* and noticing in the two words first the difference in the *p* sound and then the difference in the *t* sound. Four distinct sounds are represented by the *t* and *p*, none of which is a *tuh* or a *puh* sound. Even when a rule is proposed ascribing one sound to a letter or combination of letters, the number of words which illustrate exceptions to the rule often outnumber the words which follow the rule. Some children who have had only intensive synthetic phonics instruction have difficulty synthesizing the various phonemes in a word and laboriously sound out each word they read in separate phonemes.

The analytic phonics approach. An improvement upon the synthetic phonics approach is the analytic phonics approach. In this approach the teacher begins the instruction by presenting a written word whose sound is familiar to the child. The word is pronounced aloud by the teacher and perhaps by the child. The child then may be asked "What is the first sound? The last sound? The sound which follows the first sound?" The letter combinations which represent each phoneme are identified by the teacher; the child pronounces these letter combinations as they are identified and later may be asked to pronounce them isolated from the word in which they originated. The analytic phonics approach emphasizes meaning as well as discrimination. When analytic phonics is taught as just described, whole word instruction and language experience instruction precede instruction in grapheme/phoneme correspondence. Therefore, the value of the analytic phonics approach could be due to the fact that the learning of reading is initially associated with words which relate meaningfully to the child's language and experience. Also, certain children may find it easier to relate the learning of grapheme/phoneme correspondences to reading by applying analytical thought processes rather than by applying thought processes which require synthesizing parts into a whole.

The linguistic approach. The linguistic approach or word family approach requires the child to make discriminations between initial, terminal, and other phonemes within words which rhyme or words which compose a word family. The teacher might begin with a family such as the *et* family (*et, bet, get, jet,* etc.) and graduate to families such as the *etch* family (*etch, fetch, ketch, retch, stretch,* etc.). Later the child would be given sentences and stories containing words learned in word families. The teacher may find that the child does not rhyme *bet* and *get* but pronounces the latter word "git." If so, the word *get* is not part of the child's *et* family and should not be taught as if it were. Similarly, a child

may wish to add words like *debt* to the *et* family and words like *catch* and *such* to the *etch* family. These words may be phonemically part of the family, but graphemically they are distant cousins. The study by Levin alluded to indicates that the child will have more success in beginning reading if graphemic/phonemic inconsistencies are taught initially rather than introduced at a later time.

The VAKT *(visual-auditory-kinesthetic-tacile) approach.* The VAKT approach has been described by some writers as an eclectic approach to beginning reading because the child utilizes most of his sensory modalities when learning to read new words. The child looks at the printed words, hears the word, and then touches and traces over the word with his finger while saying the word aloud. Both manuscript and cursive writing have been advocated for use in this approach; and the surface of the letters may be smooth, stencil cut, or of sandpaper. The VAKT approach is extremely time consuming and may be discouraging to most children for this reason alone. The approach is not eclectic in the sense that synthetic phonics, linguistic, and language experience instruction are generally not considered part of the approach. The main emphasis is placed upon the discrimination of whole words. Research has not proven the VAKT approach to be more effective than other approaches when used with either normal or abnormal children.

The whole word approach. The whole word approach or the look-say approach has received its share of criticism even though most words which individuals learn to read initially are learned as wholes rather than sounded out phoneme by phoneme. In this approach, the child is shown a word either in isolation or in context; the sound of the word is presented with the word; and the child learns to associate the printed word and the sound. After the first few words are learned in this manner, it is difficult to say whether the child attacks new words as wholes or analyzes the graphemic/phonemic units within words by using inductively learned graphemic/phonemic generalizations. In a whole word approach the child learns grapheme/phoneme correspondences which are more authentic than those taught in either a synthetic or an analytic phonics approach.

The language experience approach. The language experience approach enables the child to read whole words in a context which relates meaningfully to both his language and experience. The procedure will vary depending upon the sophistication of the learner and his knowledge of reading, but the approach can be used successfully with any beginning reader who can discriminate between the various upper- and lower-case letters and who also knows that a word is a word. One way of proceeding would be as follows.

First, the teacher encourages the child to discuss an actual past experience or to describe something that is taking place at the moment. Each important sentence from the discussion is repeated over and over again by the child so that the teacher can transcribe the sentence in manuscript form on a piece of paper in front of the child. After the sentence is finally transcribed, the child is asked to read the sentence aloud, is then asked to read random words from the sentence, and finally is asked to read the entire sentence again, as well as any preceding sentences after the first sentence is recorded. The child is reminded always to *read the way he talks.* After a sufficient number of sentences is recorded in this manner, the child is asked to give his story a title. The same procedure is followed in recording the title of the story as is followed in recording sentences in the story. The child then reads the title and the entire story. He makes his own copy of the story in manuscript form, reads his own story aloud again, and finally illustrates his story with a sketch or perhaps with an illustration from a newspaper or magazine. The story is reviewed at subsequent class sessions, and further language experience stories are added to the child's collection.

The child

Some obvious decisions concerning the choice of one or more of the preceding beginning reading instruction approaches for an individual child can be made. A phonics approach should not be used with a child who is unable to hear well enough to distinguish clearly between basic sound units within the language. Even though the teaching of grapheme/phoneme relationships as an initial step in beginning reading is valued highly, little purpose would be found in teaching the sounds of *s, t, sh, ch,* etc., if the child is unable to distinguish one sound from another.

Similarly, a synthetic phonics approach should not be used if the phonic generalizations generalize poorly to the child's spoken language. While the synthetic phonics approach may seem to some teachers a most logical approach to use in beginning reading instruction, the value of the approach diminishes approximately in proportion to the number of exceptions to the generalizations found *in the child's* language. Many writers, including Clymer and Wardhaugh in the United States, have illustrated the futility of teaching phonic generalizations such as "when two vowels go walking, the first does the talking as in *read* and *teach.*" The word *learn,* for example, and many other words do not follow this particular phonics rule.

Does the child find the approach to beginning reading instruction enjoyable or positively reinforcing is another important consideration to be

made. If the child finds that each attempt to learn reading is an intolerably monotonous chore, he is learning something about reading: reading, he learns, is not for him. If, on the other hand, the child finds that each step to learning reading is enjoyable and has meaning to him personally, he will want to continue to learn to read.

Abraham Maslow of Harvard has demonstrated the importance of meeting certain basic needs before much learning of any type can occur. Therefore, requisite to the child's optimum learning of reading is the satisfaction of certain basic physiological and psychological needs. Before the first step in beginning reading instruction is taken, the child should be physiologically fit—neither ill, tired, thirsty, nor hungry—and should have other bodily needs satisfied. Furthermore, the child should feel secure and unthreatened in the teaching-learning situation and should realize a sense of belonging both within and outside his instructional group. The child should also be made to feel that he is a worthwhile member of the group in which he finds himself, and his esteem as a group member should be constantly heightened. In addition, he should receive continual encouragement while learning reading and while developing his capabilities in other areas as well. Unless these needs are met before reading instruction proceeds, however, the results of beginning reading instruction will not be what they should.

The importance of having a child complete certain reading readiness activities before beginning instruction is initiated has been discussed by many writers. Generally, if the child desires to learn to read, if he can discriminate between various upper- and lower-case letters and knows that a word is a word, and if basic physiological and psychological needs and prerequisites have been met, the competent teacher using a viable approach in a suitable teaching-learning situation will teach the child how to read.

Only after the reading teacher becomes aware of the different variables which affect successful beginning reading will she be able to control the variables so that each child in the classroom will experience successful beginning reading. Not the least important factor in beginning reading instruction is the control of the environment in which the beginning reading instruction takes place.

The learning environment

Many factors within the social and physical environment can be controlled so that beginning reading is enhanced. Many studies of the approaches to beginning reading instruction have given too little

consideration to the effects of important variables within the learning environment. Both sociological and physical aspects of the learning environment must be observed and controlled by the reading teacher to promote successful learning of beginning reading.

Social environment. In controlling the social environment the teacher of beginning reading must consider such factors as class size, grouping, teacher-pupil relationship, peer relationships, and the effects of reinforcement on both the pupils receiving and the pupils observing the reinforcement. Ideally, class size in beginning reading instruction should be small enough so that the teacher can easily give one-to-one instruction. Almost invariably the child who receives one-to-one reading instruction learns to read and makes significant gains in reading ability. Today most children receive beginning reading instruction in classes of twenty or thirty children or in subgroups of five or six and thus do not receive sufficient attention to their individual learning needs. Grouping provides the means by which the teacher can provide more individual attention to children; but still the larger the number of groups the teacher must teach and the larger the size of the groups, the less effective the instruction in beginning reading will be. In many areas of the United States housewives, parent groups, and other individuals have volunteered to work in the schools to help children learn reading. Most of these volunteer programs have been highly successful because one-to-one instruction was provided.

The attitude the teacher takes toward her pupils and the attitude the pupils take toward one another and toward the teacher will affect the results of beginning reading instruction. The teacher can establish harmonious social relationships within the classroom by assuming a positive reinforcing attitude, by encouraging the children to work together in groups, by letting the children help one another with learning, by being the child's friend and teacher, and by rewarding socially acceptable behavior and refusing to react to most socially unacceptable behavior.

Whenever the teacher provides extrinsic rewards in the form of praise, smiles, nods, grades, stars, stickers, and other rewards, she must be certain that the efforts of the children are being rewarded on an equitable basis. Studies indicate that when reading performance is reinforced so that some children receive more rewards than other children, the children aware of receiving fewer rewards than others do not perform in reading as well as they could. Rewards should be provided on the basis of effort regardless of ability and should be distributed equiponderately to the children in the group. For most children "losing the reading learning game" discourages them from wanting to continue. Initial success in

beginning reading is an excellent predictor of later success in reading, and the beginning reader should be given every indication possible that he is succeeding.

Physical environment. The importance of the physical environment in beginning reading instruction must also be considered. If the child associates an attractive physical environment with beginning reading instruction, the learning of reading will be enhanced. The room itself, the books and other instructional media, the desks, the bulletin boards, the windows, the lighting, the attire of the children and teacher, the room temperature, the sounds and sound level, and whatever physical rewards the teacher introduces into the teaching-learning situation will affect to some degree the learning of beginning reading. An attractive, comfortable, well-illuminated room with colorful bulletin boards and an attractively dressed teacher will be positively reinforcing to the beginning reader. Furthermore, an abundance of attractive books and other media relevant to the child's interest and experience will reinforce reading performance more than will the use of one book or the use of books and other media to which the child has difficulty relating.

If teachers in the classroom do use tangible rewards to reinforce the learning of beginning reading, care should be taken to reward all students in the classroom equitably so that "losing the reading game" does not inhibit the performance of students who receive fewer rewards than others.

The research

Each of the approaches to beginning reading instruction outlined have been described by various writers and researchers as the best approach to use to teach beginning reading. Even well-designed research studies have shown that some of these approaches are better than others. What one must realize, however, is that the results of studies on beginning reading almost always produce actuarial results—not results which indicate what approach would be best for individual children within the experimental group. When a study shows that an approach is significantly better than another at the .05 level of significance, can we say that we have found a good approach to teach beginning reading? Not at all. Questions which may legitimately be asked are: Might there be better approaches with which to compare the approach appearing significantly better? To what degree is the approach what it is described to be? What effects did teacher, child, and environmental variables have on the results of study? Are the results of the study generalizable to different teachers, children, and

environmental conditions? Could certain children in the group studied have learned more reading by using another approach or combination of approaches? Were other contaminating effects such as history, testing, and regression controlled? Was the statistical treatment of the data appropriate? Too often reading specialists and writers in the field of reading support their arguments for or against various approaches to beginning reading instruction with studies which are, in effect, no support at all because of inferior design, inappropriate statistical analysis, or other contaminating factors in the studies cited.

In a reply to an article on research findings concerning phonics in beginning reading instruction, LeFevre (*1*) writes:

> It must be chastening to all of us to realize that there has never been a method of teaching beginning reading that has been a total failure, nor has there ever been one that was a total success. Some children have learned to read by all known beginning reading programs; but some children have also learned to read almost entirely by themselves using no known methods, and possibly in spite of methods and material. Anyone who is interested in reading improvement must be concerned with the children who do not learn to read by any known method so far devised. Here is the challenge.

The problem of the method to teach nonreading children how to read does exist at this moment in many classrooms throughout the world. What is needed, however, are additional teachers and administrators sensitive to the learning needs of individual children so that in each situation there will be proper and sufficient focus on and attention to more of the variables which contribute to successful beginning reading. The challenge of LeFevre is being met by some administrators and teachers of beginning reading and certainly can be met by many more.

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Reading Instruction for Nine- to Twelve-Year-Olds

In August 1968, the Second IRA World Congress on Reading met in Copenhagen, Denmark. The theme of the congress and the topic of Eve Malmquist's opening address was "Reading Ability: A Human Right and A Human Problem." Malmquist emphasized that each individual should be given the opportunity to develop his reading ability to its highest potential. He said, "this is a right." He stated that 65 percent of the world's population is below functional literacy (fourth grade level); only 24 percent of the people of India are literate; only 5 percent in Ethiopia are literate. Illiteracy is on the increase because of rapid population growth and has grown to be an acute problem of the world today.

Malmquist noted that we spend much time and money on conquering disease in the world. We need to conquer ignorance. He pointed out that we have two tasks before us: to eliminate illiteracy and to raise the level of functional literacy to at least the ninth grade level. Malmquist continued by saying that we need an intensified worldwide literacy campaign. Fifteen times as much money is spent for defense in the world today than is needed for a literacy campaign.

Former United States Commissioner of Education, Dr. James E. Allen, Jr., set a target for the 70s—The Right To Read. He delivered a stirring address on this topic in September 1969 to the National Association of State Boards of Education. Allen (*1*) said ". . . from the beginning of our Nation, the importance of education has been recognized. Education has come to mean many things and to encompass a wide range of information and experiences, but certainly it must still include, as it did in the beginning, the ability to read.

"Those who do not gain this ability in the course of their early education lack a skill necessary to all other areas of learning and are being denied a fundamental educational right—the right to read."

Allen referred to a variety of statistical information accumulated by

the United States Office of Education regarding reading deficiencies in the country:

> One out of every four students nationwide has significant reading deficiencies.
>
> In large city school systems up to half of the students read below expectation.
>
> There are more than three million illiterates in our adult population.
>
> About half of the unemployed youth in New York City, ages 16–21, are functionally illiterate. Three-quarters of the juvenile offenders in New York City are two or more years retarded in reading.
>
> In a recent United States Armed Forces program called Project 100,000, 68.2 percent of the young men fell below grade seven in reading and academic ability.

Allen proclaimed his belief "that we should immediately set for ourselves the goal of assuring that by the end of the 1970s the right to read shall be a reality for all—that no one shall be leaving our schools without the skill and the desire necessary to read to the full limits of his capability." Allen called for a national commitment to and involvement in the achievement of the "right to read" goal.

Thus, very high goals and very necessary goals have been set for all of us. In realizing these goals, we are faced with many interrelated problems. A few are listed here:

- the many rapid changes of our world,
- the pressures resulting from world competition,
- the school population explosion,
- the number of disadvantaged people in the many parts of the world, and
- the many new reading programs and materials coming before us and making decisions concerning their value in our instructional programs.

Expectations

If the goals set by these people are to be attained, we have to teach reading to the nine- to twelve-year-olds and do it better than we have ever done it before. This challenge also means that reading instruction must continue beyond the twelve-year-old level.

When one talks or writes about reading instruction for the nine- to twelve-year-olds, there are certain expectations that come to mind. We expect that the child has progressed through the normal stages of growth

and development up to this point. We expect that the child has had good, effective teachers with excellent preservice and inservice training, especially in reading methodology. We expect the teachers to have an understanding of the nature of the reading process. We expect that the child or student, before reaching this age, has had a good, basic primary reading program with no major gaps. We expect and accept that learning to read to the fullest limits of one's capabilities is a long-term developmental process.

Program

The nine- to twelve-year-olds need an eclectic approach to reading as does any other age group, younger or older. The eclectic approach involves selecting methods or approaches and materials based on the individual differences and needs of the learner. The eclectic approach is the selection and orderly combination of compatible features from diverse sources (*2*). It is the combination of valid elements from various theories into a harmonious instructional program.

The reading program has to be a part of the total language arts program. The language arts program is composed of listening, speaking, reading, and writing. In order to read effectively, the child should have developed skills in listening, speaking, and writing.

As at any instructional level, the student in this age group needs individual evaluation. Individual evaluation, or diagnosis, is used to determine the student's capacity and his present level of reading skill achievement. Evaluation of reading achievement will include: 1) sight word vocabulary; 2) word attack skills; 3) level of silent reading: 4) meaning vocabulary and concepts; 5) ability to profit from listening situations, including oral directions; 6) oral reading skills; 7) facility in finding information, the use of reference materials; 8) work habits and attitudes; and 9) rate at which curricular materials can be read (*3*).

After evaluating or diagnosing student reading, a flexible reading program has to be planned to meet the individual differences and needs as indicated by the evaluation. The reading instructional program must be well planned, organized, and systematic. In planning this program, careful consideration must be given to the reading of all curricular materials, such as science, social studies, mathematics, and health materials as well as literary type materials.

Word attack skills

Word attack skills must be reviewed and extended in the intermediate grades (*3*). Too often, it is assumed that because a child has reached the

intermediate grades or the age group being discussed, his word attack skills have been proficiently developed in the lower grades. Analysis of his reading evaluation, or diagnosis, will show his word attack abilities and instruction should be provided in those skills that are deficient—individual instruction or instruction with a group that has the same needs or deficiencies. It is not necessary to teach the entire class word attack techniques, if some have adequately developed the skills.

Heilman (*3*) has pointed out that experience indicates that lack of ability in phonic analysis will be a major stumbling block for many pupils at this level. Since most of the emphasis on teaching phonics falls in the primary grades, the curricular materials at the intermediate level may not contain enough practice for those pupils who are deficient in this skill. Prefixes and suffixes should be dealt with extensively at this level from the standpoint of both structural and meaningful changes produced. Syllabication is a dictionary skill which should be stressed.

Vocabulary and concept development

Much attention must be given to vocabulary development and the development of concepts. By the time pupils reach the intermediate grades, difficult vocabulary and concepts are introduced in the various content materials at a rate that causes much frustration among many pupils. Meaningful reading at this level depends upon the acquisition and continual extension of concepts. One of the major reading problems is coping with the gap which tends to develop between the child's store of meanings and the demands made by the curricular materials he is expected to read (*3*). In these grades, a great number of idiomatic expressions, abstract terms, figurative terms, and new meanings for words learned earlier appear in the materials to be read.

Contextual analysis continues to be important to the student as an aid in word recognition and vocabulary development. When the reader does not know or recognize the word, context may give him enough clues of the word meaning to permit comprehension. At this age level, reading vocabulary may begin to exceed listening vocabulary. Contextual analysis becomes more important in the development of meaning vocabulary and good reading comprehension.

Silent and oral reading

Most reading at this level is silent reading. Good word attack skills, wide vocabulary, and concept development are basic for effective silent

reading. Depending upon the nature of the material, silent reading needs to be purposeful and guided.

Much has been written about the pros and cons of oral reading. Oral reading can be of great value or of little value in the program depending on its use. Oral reading is a necessary part in diagnosing a pupil's skills and weaknesses. Hearing and observing a child read orally give important clues to his competence in sight vocabulary, word attack skills, use of context, and use of punctuation. Other oral reading should be a part of the program and must have meaningful functional use. The values of oral reading can be found in many class situations. Regardless of the situation, oral reading can be justified only when the purposes are logical, the goals educationally sound, and the preparation adequate to the occasion (*3*).

Oral reading can be an ego-building experience or a most frustrating experience for the reader. There must be purpose for the oral reading. The reader must be prepared with the material to be read aloud. Oral reading should not be overused so that it loses its effectiveness. Oral reading must be meaningful, not artificial or mechanical.

Oral reading must be part of the program in preparation for demands put upon students in higher grades and in adult out-of-school situations. Instruction in oral reading must be considered in light of the purposes for which it is used, by the materials used, and how it is incorporated into the total program.

Study skills

Study skills are basic to the reading of content curricular type materials. These skills must be developed through practice with good content type materials including 1) previewing materials, 2) skimming and scanning, 3) reading graphic materials, 4) locating information, 5) evaluating material, 6) organizing, summarizing, and reporting, 7) retaining the essentials of what is read, and 8) adjusting rate to purpose or flexibility in reading.

"Previewing," as defined by Spache (*4*) ". . . is an organized, rapid coverage of reading materials, such as a chapter in a book, a report, a newspaper article, or other source. In practice, it involves reading some or all of the following before deciding how or whether to read the entire selection: title, headings, subheadings, summary or introductory statements, illustrative and graphic materials, and opening and closing sentences of each paragraph."

Previewing means being able to answer such questions as "What

information may be obtained from this material? Is this information significant to the reader's purposes? Should the entire selection be read? What are the main ideas presented?"

Previewing must have a purpose as a technique for the students; otherwise it has little value.

Skimming involves not only recognizing main ideas but also some of the supporting details. Scanning involves locating quickly specific information in printed materials without reading all words or entire pages. Examples of scanning are locating key items in an index, a telephone directory, and other sources. As Spache has indicated, these three techniques help pupils develop flexibility in rate and skill in adapting the form of reading to the reader's purpose.

In order for the student to read content material effectively, he must be able to read and interpret the various types of graphic materials encountered. Instruction in the reading of graphic materials will include map reading, graphs (bar graphs, line graphs), charts, diagrams, and tables.

In the development of reading skills at this age level, one single textbook, or series of texts, is not adequate to encompass all the needed information on a particular topic. Pupils must develop skills in locating information. Pupils must know how to use the parts of a book: title page; table of contents; preface; index; glossary; appendix; copyright page; lists of tables, maps, and illustrations; chapter headings; and graphic and pictorial helps.

The student must learn to use the various reference materials of the library. At this level he learns to use various types of reference books, card catalogues, Dewey Decimal System; almanacs and yearbooks; picture and clipping files; and guides to periodical literature.

With the development of locational skills, he must learn to evaluate what has been found: does this material serve his purpose? does it answer his questions on a topic? Evaluation of material is critical reading of this material.

Heilman (*3*) states:

> Interpreting and evaluating material is probably as close a synonym for critical reading as can be found. Illustrations of the analytical abilities involved include:
>
> 1. Knowing what the author has said
> 2. Grasping the validity of statements and knowing when and how to check validity with other sources
> 3. Differentiating between fact and opinion

4. Noting when inferences are being drawn and drawing them when they are not stated
5. Detecting author bias as well as inaccuracies which might not be traceable to bias
6. Understanding one's own biases as these relate to what is being read
7. Taking into consideration an author's use of allusions, satire, humor, irony and the like
8. Developing some criteria for judging an author's competency in the area in which he writes

The program must include the development of organizational and reporting skills. Notetaking and outlining are basic to this part of the program.

Techniques must be presented for retention of material read or studied. Such techniques as SQ3R could be used here.

Developing flexibility and the adjustment of rate depending on purpose for reading are important. The student must learn to realize early that not all material is read at the same rate or for the same purpose.

Comprehension and critical reading

Throughout all this reading skill development, comprehension is the key. While focusing on the many facets of the reading program and developing comprehension, critical reading of the various types of materials presented to the student must be developed to the highest level possible. Critical reading does not come automatically with the development of other reading skills. It has to be carefully planned and practiced. Critical reading is a high level form of comprehension; it involves judgment and evaluation.

The program for the nine- to twelve-year-olds, or the intermediate program, is a many-faceted program. It means developing the skills already discussed. It means using basal reader type books, content textbooks, literary materials, news in the form of periodicals and daily newspapers, various types of reference materials, and teacher developed materials. Reading interests of the students must be considered in the selection of these materials. An appreciation for good literature and well-written materials must be encouraged.

No attempt has been made in this paper to discuss the implementation of this program. There are many excellent sources that explain grouping, individualized programs, departmentalization, dual progress, team teaching, continuous progress, and nongradedness.

In all of this work, there must be constant evaluation of each student's

skill development, and measures must be taken to correct deficiencies as they occur.

The development of reading skills with the nine- to twelve-year-olds is as crucial as the beginning reading development in the primary years, and there must be a program which is systematic and organized.

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Reading Instruction for Twelve- to Eighteen-Year-Olds

Reading is part of the general language skills area, which in turn is part of the total area of human communication. Although reading involves specific skills, it should always be considered in the general and broader context of language skills. In spite of recent developments in other means of communication, reading is still a basic means of information retrieval; and there is no reason to suppose that its importance will decline or that people can afford to be inefficient readers. It is certainly true that at present, with a continual increase in the available amount of information, the development of reading efficiency must be central to any educational program, especially at high school level. Yet the curious dilemma in Australian education is that the traditional emphasis on teacher-centered education has meant that a high level of reading efficiency has not been necessary for educational achievement.

Although there have been recent changes in educational policies, the majority of Australian elementary schools are not provided with libraries as basic resources so that pupils can capitalise on initial reading training. Where facilities do exist, they have usually been provided by the voluntary efforts of parents. At high school level, although for some years government resources have provided science laboratories in order to improve material technology, little attempt has been made (except within the past twelve months) to provide library resources in order to improve literacy. It is not surprising to find that a number of entrants to tertiary institutions show poor reading skills and that others have had to develop their efficiency by trial and error, within the context of an educational system which, in a sense, is hostile to efficient reading.

If we believe that reading skills are important, we may consider how they may be improved and developed during high school. There are two approaches to this problem. The first is to consider the educational climate needed to provide a favourable context for reading development; the second is to discuss the skills and instructional procedures to be

included in a reading program. Since skill cannot be retained unless it is used, it seems reasonable to regard the educational climate as more important and to leave a discussion of specific methodology until another time; for unless pupils need to use reading skills efficiently, it is difficult to persuade pupils to develop and maintain a high degree of efficiency. For this reason it is proposed to discuss those factors likely to influence the educational climate and to mention other points incidentally.

Five major factors might be considered in some detail: the total educational program must reflect the need for reading skills; teachers must be competent readers; a developmental reading program must be continued in the high school; all teachers must accept responsibility for setting appropriate standards and developing appropriate skills; and adequate resources must be available and used. These can be considered in the form of questions.

Is efficient reading necessary?

The main information resource in present day formal education is the teacher. Until recently, the learner's task was to follow the teacher; and teacher training, at least in Australia, has always assumed that the teacher's role as an information source defines his basic function. Most of a pupil's time has been spent listening to teachers. It must be clear that reading is a skill used by learners; and if a pupil is taught rather than encouraged to learn, then the reading skills he requires are minimal and not much beyond word recognition. It should occasion no surprise to learn that the most recent evidence available in Western Australia shows little relationship between perfomance in examinations for university entry and reading ability. This datum suggests that students can perform quite well in content subjects although their reading scores, in some cases, put them at average grade seven elementary school level. Thus, the syllabus can be covered adequately by the traditional teacher-dominated methodologies, and the tool which would permit the pupil to become independent in his learning is left partially developed.

Are teachers good readers?

It follows that those who grow up in such a system as described and continue it through teacher training, return to perpetuate it through their own practices. Trainee teachers show no great proficiency in reading, and their training is merely a continuation of high school procedures, except for those who attend university; and even here the

possibility of independent learning has little effect on past habits. It seems inevitable while the present educational philosophy continues to retain the central dominance of the information resource role of the teacher that without alteration to the organisational structure of schools which require teachers in large numbers, the standard of entry to the profession may have to be lowered. If this prediction is so, then unless dramatic changes occur in teachers' colleges, it is quite likely that the communication skills of teachers, more especially reading skills, will not be appropriate models to present to pupils, who will follow the low standards presented by mass media.

Should reading instruction stop at the end of elementary school?

The traditional concept that elementary schools are concerned with skills and high schools are concerned with content overlooks the possibility that there are systems of communication skills which are too sophisticated for development in the elementary school. If there are such systems, and research suggests that there are (although in many instances the precise nature of the systems has yet to be described adequately), then high schools must make provision for developmental programs which permit pupils to acquire and apply these skill systems. Where such provision is not made, pupils are left to develop skills by trial and error. The preoccupation of high school teachers with cognitive aspects of education—the transmission of factual information—has been criticised by many educators. No one denies that knowledge is important or that it is insufficient to point directions to pupils and hope that the guidelines will be followed; but where pupils can obtain and systematise information, they should be given the skills and time to do so, while the systematic formal aspects of teaching should be reserved for those occasions where individual pupil effort is ineffective. One wonders how much of present educational practice is merely a rationalisation of inadequacy, either of teacher ability or of available resources.

Who is to be responsible?

Where developmental or remedial programs do exist, such courses are usually the responsibility of the English teacher. This condition probably explains why English scores correlate well with reading scores. Yet we must agree that although there are certain reading skills which are basic to all reading situations, there are others which vary in their appropriate-

ness to specific situations. The English teacher's ability to train his students to cope with literary reading tasks may be adequate, but we cannot assume that these in any way fit the pupils for other reading tasks or that the English teacher can train students to read adequately in other specialist fields. It seems logical that for any specific subject the person best fitted to deal with those language problems peculiar to the subject is the subject specialist. Perhaps it can be accepted that a subject specialist may master and practice his skills without knowing how he does it, but it is not acceptable that he should be professionally involved in guiding the learning of pupils without some knowledge of the process involved. Any pupil who needs to read in mathematics, social sciences, physical or biological sciences will face specific problems of vocabulary and comprehension. A teacher in any of these areas who lacks reading competence, or who is unable to assist his pupils to develop their competence, must fall back on rationalising the system which he perpetuates—one which makes him central and which relegates reading to a place of limited importance in the educational process. The saddest thing about this matter is that it keeps the pupil dependent on the teacher and trains him to believe that this is the natural condition for any pupil. The teacher's self-importance is satisfied, but at great cost to the pupil.

Therefore, we must argue that communication skills are the business of all teachers, not the sole responsibility of the English teacher or language specialist. Each teacher must know the reading skills required in his subject, be master of them himself, be able to organise his subject to utilise these skills, and see to it that his pupils continue to develop reading skills adequate to their needs in studying the subject. It would probably be appropriate to group subjects with similar reading needs to avoid unnecessary repetition. It is also clear that merely adding self-instructive reading programs to the high school course in the hope that pupils pick up the necessary skills will not solve the problem, although the practice may alleviate it for some pupils.

Are reading resources adequate?

Earlier it was suggested that to some extent the existing high school organisation and educational practice were designed, perhaps intentionally, to rationalise teacher incompetence. In fairness to teachers it should be pointed out that their inadequacies are only one aspect of a general lack of resources. Even the competent teacher, who does make every effort to develop adequate reading skills in his pupils and who plans his course in such a way as to necessitate his pupils' using these skills, finds himself

frustrated by two restrictions: the reading resources are inadequate or the pupils have no time to use the resources which are available. These almost overwhelming limitations are often closely related. When high schools do have library facilities, the total number of books available is often too few to meet the pupils' needs. Consider a school which has 10,000 books. If the school enrollment is about 1,000, this number allows an average of ten books per pupil. It is assumed that the reference material will be adequate to cover a range of five years with a variety of subjects within the levels, even ignoring the need for material beyond the narrow confines of the syllabus subjects. With increasing purchasing costs, it may be some years before a high school library reaches adequate standards of book availability; and by that time much of the material in some areas will be out of date. As usual we overlook the fact that the inside of a school is more important than the outside. The slow development of school libraries is another indication of the basic nonreading educational philosophy which teachers practice and condone.

Even when book resources are adequate, accommodation is not. Many high school libraries are unable to seat more than two classes at a time. If the school is large, each class may have only a single period in the library, at most two, during the week. Under such circumstances it appears that the opportunity to read during the formal school hours is minimal, indeed virtually useless. On these grounds it is clear that the skill aspects of reading are not likely to be retained at any level of efficiency. It could be argued that the pupils may read in the classroom, but this idea fails on the grounds that the resource materials are in the library and not in the classroom; and presumably if the pupils are to read, they must have something worthwhile available.

Thus, while some teachers are sufficiently enlightened to want their pupils to read and are prepared to make efforts to change the traditional teaching-oriented timetable to permit this habit, the time made available by this change cannot be utilised effectively because the high school libraries are not large enough. Of course this trend is also apparent in tertiary institutions in Australia. Is it any wonder that we fall back on what appears to be the simplest, cheapest, and easiest method of information transfer—the one of having the teacher read the book and report a summary to the pupils?

While present circumstances limit a pupil's reading under supervision with appropriate resources, and leave him to do what he can outside formal school hours, it is imperative that he be as skillful as possible in order to utilise what little time he has. The present trend toward pupil-centered learning experience, rather than teacher-centered instructional

experience, cannot become a reality unless pupils are efficient readers, have resources available, and work within a system which permits them to make use of these resources.

It is true that further research needs to be carried out in order to define the more sophisticated skill systems likely to be appropriate in high school and adult reading and which go beyond word recognition and simple comprehension. But if the efficiency aspect of reading is speed, in the sense of enabling pupils to sort visual information rapidly, then even now it is possible to produce more efficient reading by means of simple techniques. A clearer distinction between reading and studying (sometimes confused by teachers) would also be helpful. Comprehension can be improved simply by telling the pupil what he is looking for; i.e., setting the purpose of the experience by giving the question first rather than after the reading has been completed.

However, the major impact on reading improvement will be made only if the teachers can (and do) read well; if the educational system requires and encourages reading by providing appropriate coursework within a school organisation which gives the pupils time to read and provides adequate space and resources; and if all teachers accept their general responsibilities in communication and information processing skills, thus providing an appropriate reading climate. Without this climate, no developmental program is likely to have much impact; and although such a program is necessary, its precise nature is far less important at this point in time than the provision of a favourable learning context.

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Automation and Programing in the Teaching of Reading

In the present pushbutton world—automated production of goods, automated ordering, automated medical diagnosis, automated traffic control, and automated selection of a partner for a date or even for marriage—great pressures are being exerted for increased automation in education. Strong resistance is being built up as well. A great deal of the pressure and resistance is buttressed by personal emotion rather than by reason. Some individuals are convinced that machines can perform competently almost all human activity; others are afraid of being overrun—even controlled—by machines. Where does the truth lie? What place does automation have in education and in the teaching of reading?

Five basic considerations

In attempting to answer these questions, it first seems essential to remind ourselves of five basic considerations.

1. *Machines are stupid.* There is nothing intelligent within the wires, transistors, and other mechanical parts of a computer. Even though a computer can be assembled to exhibit some of the characteristics of human intelligence, it has no intelligence of its own. A computer behaves as it has been predirected by man.

2. *Successful automation depends on effective programing.* It is what man puts into the machine—and only to a minor extent the machine itself—that makes for successful or unsuccessful learning. A computer's success in helping a person learn is determined principally by man's input—the program. If programing is faulty, learning will be imperfect.

3. *Learning material that can be expressed objectively can be programed.* Any concepts, any skills, or any attitudes lending themselves to objective description have potential for accurate programing and, thus, for successful automated learning. Perhaps as we learn more about the teaching of reading, we will be able to program other learning skills.

4. *Most current educational programing is based on logic of subject.* Thus far, most efforts in automated teaching of reading have centered around attempts to break down the reading act into relatively unique components, ranging from simple to complex. The logic of unique, individual development within each person learning to read has had only minor programing attention to date.

5. *Automation and programing will not replace the teacher.* While machines and programs hold potential for greatly facilitating learning to read, machines and programs are not human. They respond to the learner's words but not yet to his tone of voice as he utters these words. They respond logically to his selected response but not to the look in his eyes as he responds. They respond only to the stimuli to which they are directed to react and not to the whole individual. Teachers are still needed, and their wisdom is still essential for directing the learning of reading. Teachers themselves are still vital for providing the warm, interpersonal relationships basic for the learner's success.

Three types of assistance

At the risk of appearing omniscient, there now seem to be at least three ways in which computers can be of assistance in facilitating the process of learning to read. The first already has had considerable trial and publicity; the second has had limited discussion and implementation, while the third has scarcely been mentioned or explored. These three means of automated assistance might be characterized as 1) computer assisted instruction 2) computer diagnosis and prescription, and 3) computer simulation.

Computer assisted instruction. In computer assisted instruction, a computer replaces the book or workbook as the medium for presentation of stimulation for learning to read. The computer can present drill for reinforcement of learning material already taught, or it can present new material to be learned in a carefully programed format.

In both of these instances, the computer substitutes for the book and, of course, has potential for certain advantages over use of a book. The machine has a certain novelty which a book does not; it can present complex information, one small bit at a time, without overwhelming the learner with vast amounts of information that must be handled to show progress. A computer can eliminate presentation of repetitive practice, unnecessary for particular learners, and provide remediative learning only for those who need it and at the time they need it.

Where computer-assisted instruction fails and where it succeeds will be both the fault and the triumph of human beings, not of machines.

For computer-assisted instruction will facilitate learning to read *if*—and perhaps, in some cases, only if—learning tasks have been accurately described, have been correctly programed, and have been adequately accompanied by a human interaction between learner and teacher. Today, one or more of four essential elements seem to be imperfect or missing from much of the computer-assisted instruction for learning to read: 1) accurate description of a learning task, 2) correct programing of the activity, 3) accurate computer input, and 4) adequate human interaction. Such imperfection has led to results that, to date, are far from spectacular and has added fuel to the fire of those who fear computer assistance in learning to read. Nevertheless, the potential for computer-assisted instruction in learning to read is strong. This instruction can handle much of the subprofessional, mechanical, routine activity that drains teacher energy in attempting to help individuals learn to read.

Computer diagnosis and prescription. The second area of automated assistance for learning to read—computer diagnosis and prescription—is getting increased attention today. For several years medical specialists in certain areas of the world have used computers for assistance in identifying and in prescribing treatment for particular diseases and physical disorders. Now it seems sensible that educators can use a computer in a similar manner. The current flood of information about learning, learning to read, and alternative methodologies and materials taxes the human memory of any one individual reading specialist or teacher. A computer can help him systematically store and retrieve this information when it is most appropriate.

In the near future, in many schools a computer program may assess a learner's reading performance, diagnose his needs, and print out what he needs to do next to improve his reading. This prescription might take into account not only the learner's own individual tastes, values, and learning style but the gifts and special talents of his teacher as well. This performance will all hinge on man's ability to program these things accurately. In some areas this work will be relatively easy; in others, considerable research is needed before the goal can be accomplished.

From among myriad possibilities, a computer prescription will identify particular materials and methodologies most appropriate for the next step in learning to read. This function will assist greatly in some aspects of the teaching of reading. For instance, the computer program might indicate the particular book and page for a phonics lesson needed or the titles of two or three library books the reader probably would enjoy reading. In other aspects of learning to read, computer diagnosis and

prescription will be—for the present, at least—less useful. Presently, not enough is known about much of what is termed "critical" or "associative" or "creative reading" to successfully program many aspects of these abilities for computer diagnosis and prescription. However, apart from this, automation will be a useful tool in helping teachers to diagnose and prescribe for many skills and abilities with greater ease and probability of success.

Computer simulation. The third area of automated assistance in the teaching of reading is computer simulation. Already computer simulation has had limited use in social studies education, but, so far, very little has been done with it in reading education.

With this type of computer assistance the learner is given certain raw data for the solution of a problem or series of problems. He can frame additional questions for the computer in order to get more data he believes might be helpful. He then uses the computer to test hypothetical solutions to the problem.

In a simple example, the computer gives the pupil a set of words—*telephoto, telepathy, teleport*—and asks what simillarities can be discovered among these words. The pupil might ask the computer if the words *hotel* and *intelligence* also belong in the set, to which the computer replies "no." When the pupil asks if words like *television* and *telescope* belong, the computer responds "yes." Through repeated questioning, the successful pupil ultimately discovers that words in the set all contain a similar word element (*tele*) which usually is positioned at the beginning of a word and carries meaning relating to "great distance."

Here, learning becomes a game for the learner who uses the data in the computer program to solve a problem. Learning becomes discovery; the pupil learns how to learn.

While, at present, little use has been made of computer simulation in teaching reading, as we learn more about language and reading, this type of automated assistance also holds promise for usefulness. Computer simulation can provide meaningful, profitable learning situations suited to the unique needs of each individual learning to read.

Potential for improved learning

All three types of automated assistance—computer assisted instruction, computer diagnosis and prescription, computer simulation—hold great promise for facilitating the teaching of reading. As of now, none of the three types is fully developed to its most useful stage. None ever will

fully replace the teacher of reading. On the other hand, all can contribute toward releasing the teacher from many routine, mechanical, subprofessional activities so that as a teacher of reading he is much more than a dispenser of information. With the automated assistance of the future, the teacher truly can become a director of learning.

READING PROBLEMS

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Problems of Reading and Readers: An International Challenge

Language, thought, and behaviour

"Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood, but are very much at the mercy of the particular language, which has become the medium of expression for their society." So says Edward Sapir (*24*) in an often quoted essay.

Sapir means that it is quite an illusion to imagine that we adjust to reality essentially without the use of language. Language is, from his point of view, not merely an incidental means of solving specific problems of communication or reflection.

"The fact of the matter is that the 'real world' is to a large extent unconsciously built up on the language habits of the group. . . . We see and hear and otherwise experience very largely as we do because the language habits of our community predispose certain choices of interpretation" (*24*).

All of us have often noted that a certain way of speaking and arranging words sometimes precedes our thinking and also our conduct. But Spier and Whorf have gone much further than that. And, personally, I am on the whole inclined to share their opinion that there are interactions between language, thought, and behaviour which are not generally recognized in spite of their very great importance in our daily life. It is not only the question of how our thinking habits are influenced by those special ways of using the language but also how they are incorporated with our personality. The language has a continual influence on many of our habitual patterns of responding, either overtly or covertly, in all kinds of personal activities as well as in a group situation and in a cultural society as a whole.

We might come, therefore, to a better understanding of the reasons for certain forms of thinking and behaviour of individuals or groups by

analyzing the linguistic description, the linguistic meaning, and the name or the linguistic label which is commonly put to an actual situation.

In that way it is certainly possible to say, as Sapir does, that our world is ". . . to a large extent, unconsciously built up on the language habits of the group."

The acceptance of a theory of this kind will, of course, stress the vital importance of language in the growth and development of a human being as an individual as well as a member of the society in which he lives. And out of all the different aspects of language, reading ability has by far the most significant contribution to make in the promotion of such a development. An adequate command of the spoken language and good listening abilities are, however, necessary prerequisites of any kind of advancement as regards reading ability. All around the world many failures in reading can be traced to lack of reinforcement of the development of linguistic skills such as listening, speaking, vocabulary, and concept attainment in the early formative years of the child.

Language development in the early years of life

There is enough research evidence to give us reason to state that a child's progress in learning to read to a considerable extent is dependent upon his experiences with the use of the spoken word in his preschool years. Thought and language develop simultaneously.

The extension of meaning in language is a lifetime process. But lack of adequate training in the early years of life may seriously hamper the development of an individual's later reading performance—yes, indeed, his personality development on the whole.

The verbal environment

Children living in homes on a low cultural level, where the adults are speaking a poor language characterized by a great paucity of ideas and thoughts, will be greatly handicapped. A poor verbal environment where the adults seldom speak to the child and the conversation is limited in extent and variety will negatively influence the child's development as to speaking ability and thereby cause great reading problems later on.

Whipple (27) in discussing reading problems in the United States due to environmental influences describes culturally disadvantaged children and the results of their deprivation as follows:

> In comparison with middle-class children, children from disadvantaged

backgrounds suffer more physical handicaps—more eye defects, more hearing losses, more diseases, more malnutrition—and more neurological problems. Disadvantaged six-year-olds come to school without readiness to cope with academic tasks; their language powers are underdeveloped; their auditory and visual discrimination skills are relatively poor; their concepts are few and rudimentary. It has been estimated that by the time these children reach grade six they are retarded an average of two years and about by grade eight, three years. Most of them become dropouts before completing high school.

Early parent involvement in the child's language development

Learning to read is for most children the very first encounter with a type of learning involving abstract symbols, intended to be associated with previous experiences. If the child has not been given the opportunities to acquire such a background of meaningful concepts and if the words presented in print are not a part of his speaking vocabulary and used with real adequate understanding, he will most likely be greatly handicapped in his reading efforts from the very beginning.

Many children who fail at school in the introductory learning activities are human songbirds who never learned how to sing, as an old proverb in my country expresses it. Language is not only something to be learned, it is a tool of learning. In practically all countries around the world we face this very same, tremendously important problem in the teaching of reading. There is a wide gap from the birth of the child until he starts kindergarten or first grade of school. We may indeed speak of the forgotten first years of life for millions of children, deprived as they are of adequate opportunities to develop in accordance with their potential resources—intellectually, emotionally, and socially.

It should be in the greatest interest of every nation to increase its efforts toward the *prevention of reading disabilities,* thereby diminishing the need of economically expensive remediation later on. A significant first step would be to have national and international information campaigns started as to the importance of a language stimulating environment in the early years of life.

IRA has a great responsibility here and should take the lead in a worldwide educational information drive. Contacts should be made with WCOTP, UNESCO, international and national medical associations, and psychological associations, and ministries of education in all member countries of the United Nations, as well as with parent-teacher-organizations in various countries wherever they exist. Parents, school authorities, and

politicians should hopefully be reached and guided by means of specially prepared programs for TV and radio as well as by releases of printed materials for newspapers and magazines through international agencies.

Medical doctors and nurses are often the only professional people who see the mother and the baby in the first few years and should, therefore, be encouraged to stress with each mother the vital importance of talking with her child, consciously attempting to enrich her child's vocabulary.

I don't hesitate to characterize improved parent education in the proper care of children during early childhood through the concerted efforts of medical people, psychologists, and teachers as being one of the best investments a nation can make in the decade to come. Such an investment will pay off richly for society as a whole, as well as for the individual citizens of tomorrow—the children of today.

Reading readiness

The development of language and speech evidently plays an important part in the formation of reading and writing readiness of beginners. It is, therefore a complete waste of time to try to teach a child to read until he can articulate clearly and without difficulty. The child must first be able to express his thoughts, to tell stories, or to ask questions in a comprehensible manner. Children who are late in their speech development, or who show signs of serious speech defects, must be helped to cultivate appropriate speaking habits before the actual reading instruction begins.

In some countries a "make haste slowly" policy is recommended. In others, there are advocates who stress the desirability of a very early start in formal reading instruction, indeed at age one or two. Under all circumstances, one must not (even if it is common in many countries) merely wait for the development of reading readiness in a child. One must stimulate this growth in every conceivable manner.

A person who is reading must be able to associate printed symbols with their linguistic meanings. The reader does not grasp the meaning of the printed or handwritten text unless he also understands the linguistic units that are represented by the written symbols in their descriptions of subjects, actions, ideas, and thoughts. A satisfactory ability to listen, see, and speak is fundamental in learning how to read and write.

Exercises for stimulating reading readiness

A fully articulated reading and writing readiness program can contribute substantially to *prevent* the occurrence of many cases of special

reading and writing disabilities. As it has been previously emphasized, a child must have reached a certain level of maturity before he is ready to acquire complex reading and writing abilities without too many difficulties. The elementary reading and writing program is based upon the following prerequisites: 1) that the child's ability to *listen* attentively to sounds and linguistic signals is sufficiently developed, 2) that he can imitate and *understand* these signals, 3) that he can *speak* reasonably well, 4) that his *vocabulary* is sufficiently large, 5) that he has a certain capacity for distinguishing and discriminating *visually*, and 6) that his *motor capacity* has reached a satisfactory level of development.

Reading disabilities

Quite a number of reading experts has opposed the use of terms such as *congenital wordblindness, primary reading retardation, specific dyslexia, maturational lag*, and *minimal brain damage* to describe individuals whose achievement in learning to read is unsatisfactory. Originally Kerr, Morgan, Hinshelwood, and other investigators in the beginning of this century considered that the term *congenital wordblindness* should be reserved for severely abnormal cases, where injuries or defects in an otherwise healthy brain make reading impossible.

Some severe cases of reading disabilities may be caused by brain injuries. The relationship between the functions of the brain and the development of reading ability must still be considered to be far from clarified. It seems to be quite evident, however, that some severe cases of reading disabilities may be caused by some kind of deviation from normal neurological development: brain injuries at birth, head injuries due to different reasons, or illnesses such as encephalitis (*19, 26*). In such cases the injuries may be limited to certain parts of the brain. Some areas of the brain function quite normally, while others are strongly influenced in a negative direction.

From a medical point of view, such a retarded and irregular brain maturity constitutes what is called the "specific factor" behind the occurrence of reading disabilities along with brain injuries of the relatively rare type to which I have referred.

It is conceivable that future improved diagnostic means may lead to the verification of these hypotheses, still generally accepted by medical researchers of today within this field, that neurological defects and retarded maturity as regards certain parts of the brain of an inherited nature are specific causes of the occurrence of even more common types of reading disabilities. Rabinovitch, Ingram, Delacato, and Bender in the

United States, Hermann in Denmark, Spiel and Gloning in Germany, and Bannatyne and Critchley in Great Britain are some of the most prominent representatives of this line of opinion. From my point of view, however, it is reasonable to consider these hypotheses as mainly unverified.

The majority of cases of reading disabilities show no signs of neurological deficiencies. When using now available investigational instruments the overwhelming majority of all cases of reading disabilities present no demonstrable signs of neurological defects. Whether the causes of these difficulties are to be sought in neurological defects, I would like to state that research of both a medical and a psychological-pedagogical kind has shown that in most cases improvement can be produced by the use of specially arranged teaching and treatment. Many psychologists maintain, however, that such severe cases of constitutional congenital word blindness, as the term refers to, occur very rarely (*2, 17, 23*). At any rate, it is not considered possible, with the means at our disposal, to diagnose and differentiate a group, in the field of reading difficulties, which is suffering from a specific disease termed *congenital word blindness, specific dyslexia,* or the like.

Many investigators have expressed the opinion that only very rarely are reading disabilities due to a single cause. In most cases, whole clusters of factors which were found to have a certain relation to reading disabilities are considered to be operative, even if one is not always able to determine the causal connection (*3, 4, 7, 8, 10, 11, 13, 14, 15, 23*). Sometimes it has been possible to state only the symptoms or factors observed in connection with reading difficulties, without being able to determine clearly whether these factors should be regarded as primary causes of reading disabilities or as the consequences of these disabilities.

The Japanese medical doctor, Makita (*12*), has come to the conclusion that the prevalence of reading disabilities in Japan is some ten times lower than the figures which he suggests may be taken as average (10 percent) for western countries. This difference cannot, from his opinion, be explained by assuming that the Americans and the Europeans have ten times more individuals with maldevelopment or malformation of certain parts of the brain than the Japanese have.

After having reviewed the literature within this field Makita says that he cannot believe that the prevalence of hemispheral dominance conflict or mixed laterality is ten times less in Japan than in western nations. It is equally absurd, he says, to suggest that children with emotional distress are ten times less frequent in Japan. In reality, the prevalence of behavioral problems and psychosomatic manifestations in Japan is, according to his experience, as high as it is in western countries.

Makita has come to the conclusion that the nature of script itself as a causative factor of reading disabilities has been overlooked: "Theories which ascribe the etiology of reading disability to local cerebral abnormalities, to lateral conflict, or to emotional pressure may be valid for some instances, but the specificity of the used language, the very object of reading behaviour, is the most potent contributing factor in the formation of reading disability. Reading disability, then, is more a philological than a neuropsychiatric problem."

Even though the adequacy of Makita's research may be questioned to some extent, he has put forward an interesting hypothesis. Great differences with regard to the correspondence between letter and sound exist in languages like Spanish, Finnish, and Korean, and such languages as English and French. The Spanish, Finnish, and Korean languages are highly phonetic, whereas the English and French languages may have the same sounds represented by different letters and combinations of letters. It has been assumed that *the less* the correspondence between the written characters and the sounds, the more difficult will be learning to read. Further research to test this hypothesis seems to be highly desirable from an international reading research point of view.

Remedial instruction in reading

According to the results of a number of scientific studies within this area, competent remedial instruction in reading given to retarded children in reading clinics or reading classes has positive effects (*6, 22, 25*). The results of certain follow-up studies indicate that, after a learning period, there is a considerable stagnation or even decrease in the growth rate of reading ability, unless the remedial instruction is continued.

In a follow-up study of children with serious retardation in reading, Balow (*1*) found that, during a period of 9–35 months after intensive remedial reading instruction during the summer months, the pupils ceased to make progress if they were not given additional remedial instruction, while those who were given further continued instruction continued to increase their skill at a rate equivalent to about 75 percent of the normal rate of progress. From this, Balow draws the conclusion that even if the retarded readers did not fall back to the level of reading ability they had before they attended the summer course in reading, but retained the standard reached by remedial instruction, further attention and support still seem necessary if progress in reading is to continue. Similar results are reported from investigations by Collins (*4*).

Early diagnosis and prevention of reading disabilities

Many investigations have stressed the significance of early diagnosis which might make early treatment of potential cases of reading disability possible (*5, 18, 20, 21*). The lack of acceptable prediction instruments still seems to be great in most countries. It must also be admitted that very few acceptably controlled longitudinal studies have been made of the effects of remedial instruction given to children with special reading disability. "In the past, research has centered on the facts that could be secured through studies of individuals at a given time or through cross-sectional studies of groups at given levels of school progress. The need is urgent today for longitudinal studies which follow given individuals and groups for periods of time in efforts to secure a more penetrating understanding of the factors which result in serious forms of reading disability" (*9*). In another recent review of research in this area, Harris (*16*) stresses the great need for longitudinal research into the effects of early identification and treatment of reading disability.

A total of 80 percent of the cases identified as potential reading disability cases at the beginning of grade one were prevented from arising according to a longitudinal study in 12 Swedish cities. Malmquist (*16*) has reported on a six-year longitudinal study of reading disabilities in children at the primary stage (grades one, two, and three) of the comprehensive school carried out in different parts of Sweden. The pilot study comprised 20 classes with a total of 386 pupils, and the field experiments included 72 classes with a total of 1,653 pupils from 12 towns. To test the hypothesis that it is possible to reduce considerably the number of cases of special reading disabilities during the first three years at school, the experimental-control group method was applied. The differences between the groups were studied by, among other methods, analysis of covariance. A series of multiple regression and correlation analyses were made in order to study the predictive power of various predictors of reading and writing ability in grades one to three. The reading readiness variable had consistently the highest predictive power (between 58 and 86 percent of the combined predictive power of the three predictors), regardless of the criterion variable concerned. Significant group mean differences in five cases out of six support the hypothesis, as does the occurrence of a region of significance demonstrated by the method of matched regression estimates. Starting from the operational definition of special reading disability, it may be said that more than four-fifths of the cases identified as potential cases of reading disability were prevented from occurring.

In a subpopulation, comprising pupils from the two groups, which, initially (during the first term of grade one) scored low on certain tests, a number of criterion variables was subjected to analysis of variance, using different multifactorial designs. The results of these analyses are also interpreted as support for the main hypothesis: that remedial instruction in reading clinics has a positive effect on the development of both reading and spelling ability. The frequency of pupils with both reading *and* spelling difficulties was found to be consistently lower in the experimental groups than in the control groups—in the experimental groups less than 1 percent of the population as against the c:a 5 percent expected. The results of the investigations also show that the reading clinics established in conjunction with the experiments contributed to reduce the variance among pupils in the experimental groups in relation to the variances of samples used in reading and spelling test standardization.

A duplication of longitudinal research studies of this type into the effects of *early* identification and treatment of reading disabilities seems to me to be of the greatest importance in other countries of various language spheres around the world. Problems connected with special reading and writing disabilities are so multifaceted and touch so many different scientific areas that an interdisciplinary cooperation between researchers concerned with this kind of work must be considered not only highly desirable but even necessary, if further progress is to be achieved. A trend toward such an increased interprofessional team approach within the field of reading research has been clearly recognized during the past decade.

The reader's personality and the effects of reading

When discussing the nature of the reading process and the effects of reading, we should always keep in mind that influences of printed or written material on a reader are not only determined by the content of the material but also by the writer's intentions and skill. The reader's background and experiences in various respects should also immediately be put into focus. We must not forget that the effects of reading are strongly interrelated with the reader's personality.

In our teaching of reading we might do well by asking questions about the reader. What kind of person is he? Where does he live? What kind of home does he live in? Who are his friends? With whom does he spend his leisure time? What kind of experiences does he have? What are his aspirations and dreams? What are the failures and successes in his life? Does he dislike reading and, if so, why? Are there some reading materials

he likes? What about his reading skills with various types of reading matter and his approach to reading?

A good reader goes beyond the facts presented on the printed page and raises questions; he is able to discover new personal meanings; he gets stimulation to further thinking; he reacts intensively and moves toward creative action and higher thinking processes of interpretation and critical reading.

The problem of illiteracy, the most gigantic and demanding one of our generation

It is undeniable that judgment, intelligence, empathy, understanding, love, and trust can be found in abundance among the illiterates of the world. The mere act of learning to read, even on advanced reading levels, may in no way bring about those human attributes without which man cannot truly survive, no matter how developed his technology or his so called methods of "defense." But it is through the printed word more so than through other communication instruments that, for instance, the findings from the social sciences and the humanities can be made accessible to individuals around the world. Thanks to the acquisition and use of the simple reading skill, people (victims of distortions in thinking and perceiving first about their own individual selves and then about other world inhabitants) have access to the great wealth of findings about human nature. Thereby they can become agents for their *own,* personal, self-liberation and also more accurate interpreters of the behaviour and feelings of others.

Literacy is, from my point of view, demeaned if its only value is seen in terms of achieving improved production, economic progress, and technological advancement. Instead, literacy must be seen also as a primary means for the enhancement of man, for his liberation from outworn, outdated, or false assumptions. It must be stressed that literacy is a unique instrument to release the rich potentials of the inner man, his feelings of joy, of trust, of caring—of the rich feelings of life.

How is the situation now among the peoples of the world as to access to this invaluable tool in human lives—reading and writing ability? The spoken word may be considered to be universal in human society—but not so for literacy. The General Assembly of the United Nations in various resolutions since 1948 has many times stated that the right to education is one of the fundamental rights of man and that illiteracy is the most serious handicap for economic, political, social, and individual development that we know, a grave block to international understanding

and cooperation, and the most stubborn threat to peace in the world of our time.

The importance of reaching a rapid solution to this worldwide, gigantic problem is generally recognized *in principle*. But when it comes to *practical action,* many difficulties and delicate priorities produce problems that cause the effect of adult literacy programs so far to be much less than was expected. You may be aware that the number of adult illiterates, rather than being on the decline, is actually increasing at the rate of 25 to 30 million persons a year, owing to the fact that educational progress has not kept pace with the rapid population growth.

For the illiterate, himself, the problem in our time is surely acute. Fewer and fewer jobs are now available for unskilled illiterate workers in nearly all parts of the world, mainly as a result of increased technological developments. Problems become acute for the society of which the illiterate is a member. His potential for making erroneous decisions is compounded. As the world's people are being drawn closer together through improved means of transportation and communication, social organisations are now calling upon a responsibly informed, decision-making citizenry.

Since World War II many new self-governing countries have been established, comprising about one-fourth of the inhabitants of the earth —roughly 850 million inhabitants—of which the majority is illiterate. It seems to me self-evident that democracy in a real sense cannot be maintained in societies where the citizens are not even able to read the ballot forms. We have, therefore, a strong political demand for improved reading ability. Most regretfully, we have to admit that only small steps forward have been taken on the road toward the goal—literacy to all peoples around the world.

Some encouraging traits in the picture should not be forgotten. From many countries I have received stimulating support of the ideas I presented at IRA's World Congress on Reading held in Copenhagen, ideas which resulted in a resolution accepted by the World Congress and later by the board of IRA. Many prominent leaders within the field of reading have been enthusiastic and have committed expressions of willingness to participate in such a concerted campaign against illiteracy on a worldwide basis. International scout organisations and international Rotaries have started literacy campaigns on a small scale in selected developing countries (for instance, in Sweden).

The "Right to Read" campaign in the United States is the most promising initiative taken so far within one individual country. My sincere hope is that the strategy chosen will prove successful and will

be found useful as a kind of model for other countries. In spite of the fact that admirable work has already been accomplished—not the least by IRA—much more remains to be done before all peoples around the world have been assured a fundamental ingredient of a full human life —reading ability.

Because of the great magnitude of the problems of illiteracy in the world today; because of my awareness of the many tragedies and miseries of life in the form of hunger, poverty, diseases, and alienation; and because of social failures such as unemployment, violence, and crime—which to a great extent are related to lack of reading and writing ability —I would like to propose that this present World Congress on Reading in Sydney, Australia, go on record expressing its support of the resolution accepted by the World Congress in Copenhagen in 1968. This World Congress can once more recommend a transfer from *word to deeds, from theories to action, in an intensification of efforts to eradicate illiteracy effectively in all countries of the earth.*

All educators have great responsibilities in this undertaking and so, of course, has IRA. Let our goal be efficient reading ability for all peoples around the world before 1980.

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Educational and Environmental Causes of Reading Problems

The causes of reading problems are complex. Children come to school expecting to learn to read. Most children, parents, and teachers know that the key to success in school is the ability to read materials in each subject area. Yet, 15 to 20 percent of the children in school have a reading problem (*18*). An understanding of the educational and environmental causes of reading problems will help in the planning and implementation of reading programs that will prevent or correct reading problems.

Environmental causes of reading problems

The home and neighborhood environments of children directly relate to the causes of reading problems (*7, 19*). Little encouragement or motivation, practices that develop a poor self-concept, undesirable relationships between parents and children, distracting environmental conditions, frequent moving, and a lack of emphasis on achievement in school are environmental factors that can cause reading problems.

Motivation. The motivation of children from socially disadvantaged omes is frequently different from that needed for success in school (*27, 28*). Thus, school attendance may not be regular; achievement in school may not be important; and children may extend their activities, unsupervised by parents, into many areas which may interfere with learning to read (*4*). When these children do have problems in school, the parents may let everyone, including the child, know how dumb he is and may try to motivate him through physical punishment or verbal abuse (*22*).

Studies of reasons why pupils fail in reading (*23*) and comparisons between good and poor readers (*24*) show that social and emotional difficulties do cause reading problems. Parents may try to help poor readers but may create problems because they expect too much too soon (*13*).

Thus, they may increase the social and emotional problems making it even more difficult to motivate the child to improve his reading ability.

Self-concept. Children develop a self-concept which is generally completed before adolescence. Love, acceptance, and confidence shown to children will help them build a good self-concept. Lack of love, acceptance, and confidence may lead to feelings of insecurity, inattention, antagonism, loneliness, and indecision. Since the self-concept is a result of interaction between a person and his environment, this learned behavior can be modified. However, unless someone who is a significant person in the child's life can help him to see that he is capable and worthwhile, he may continue to have a self-concept of insignificance which may interfere with learning to read (*10, 25*)

Interfamily relationships. Children from disadvantaged families may have so many family problems that learning to read may not receive much attention. Cavan's description of the lower-class family unit (*4*) shows that in some respects the stable and continuing family unit is the mother and children. The marriage bond is often weak, due to desertions, separations, and divorces that destroy the family unit. Men are employed in semiskilled or unskilled labor jobs that come and go with changes in the market. Therefore, income is low and uncertain; savings are small; and the accumulation of wealth is impossible. Many families rent homes and move frequently, conditions causing neighborhood and school adjustment problems for children. Lower-class families average more children than any other social class. Thus, many children have far from ideal relationships with their parents and other members of the family, and the concerns connected with low income and a lack of security may receive a higher priority than achievement in school.

Effect of moving. Many families move each year to new homes. Children change schools, leave their schoolmates, and may move into entirely different communities. When studying an entire community, the number of moves pupils make does not cause a loss in reading achievement (*26*). As many children move from area to area, they have an opportunity to do exciting things which will give them a background for reading. But it is one thing for a father to receive a promotion to a new job in a different location and quite another for a rural migrant to move to a large city in search of unskilled work. Some children may move because the family has had a mortgage foreclosure and cannot pay the rent; the father must move in order to have work (*1, 14*). Disadvantaged children, then, may move under difficult circumstances. These circumstances may well interfere with learning to read.

Reading in the home. Some children come to school with so few learn-

ing experiences that beginning reading becomes a difficult experience (*21*). Middle-class children go on exciting family trips, own a variety of materials such as books and manipulative materials, and have many books read to them before they come to school (*17*). Disadvantaged children often do not have this help. Many do not have a home where parents have a habit of reading. The number of books, newspapers, magazines, and other reading materials in the home directly relates to the interest that a child has in reading (*20*). Children need a home where reading materials are available and where an example of reading is set by the parents. All too often, this example is not available to children who become the poor readers in school.

Educational causes of reading failure

Reading failure can be permitted and even encouraged by inappropriate methods and activities in schools. If teachers are not sympathetic, understanding, and sensitive to home problems, children may get off to a bad start in school and will not be motivated to change poor self-concepts or to improve in reading. Parents may be ignored and may not be given help in solving children's problems. Lack of thorough readiness programs, too difficult initial reading materials, unavailable materials for reluctant readers, inadequate ancillary reading programs, and poor management techniques, all contribute to reading failure in school.

Every child would like to read well, but children who have met with failure in school may be inattentive in class, be easily distracted, exhibit misbehavior, have a lack of persistence, and be unwilling to try (*9*). Poor readers exhibit more negative desires and more maladjustive classroom behavior than good readers (*11*). Teachers who do not understand these children may cause confrontations with them that will further complicate the reading problem. One disadvantaged child will respond to one approach while another child will need a different kind of help. Each teacher must consider each child as an individual and seek to help him with his own particular problems (*12*).

Helping parents. Educational problems can be created by a negative approach in working with parents who talk with the teacher only when a problem arises. All children do some things well, and these fine things can be mentioned during conferences. If, on the other hand, everyone is trying to blame or condemn someone else, children will surely be subjected to further unhappy situations which do not make reading a very pleasant subject. Parents can help by using more appropriate motivation, by better understanding their child's problem, and by helping tutor their

child in those areas of reading where the best help can be given as mutually agreed upon between teacher and parent (*2, 8, 12*).

Readiness and initial reading. Formal reading instruction should begin when a child is ready. He is ready when he has adequate background of experiences, oral language ability, conceptual development, mental maturity, personal adjustment, and physical development (*3, 21*). A good readiness program will help prepare a child for formal reading, and such factors as readiness tests, mental age, and teacher judgment can help determine when readiness has been achieved. Classes can be organized for extended readiness (*15*), or the primary grades can be ungraded so that each child can move at his own rate. Materials and methods should be appropriate for each child. One publisher is providing a screening test to help place children in basal readers at the beginning of a new adoption or for placing a new student who moves into a school district (*5*). Whatever the program and method used, the stigma of failure should be avoided.

Corrective reading. Each reading teacher in a regular classroom can cause further reading problems by failure to provide for those students who have fallen behind others in the room. These children need materials appropriate for their interests and achievement. Also, the teacher and children need to feel that progress can be made (*9*). Informal or formal group diagnosis, high interest materials at the proper reading level, and understanding of children and their problems are needed in every classroom to prevent and correct reading problems.

Ancillary reading programs. Not all reading problems can be solved through extended readiness programs or in corrective reading groups in the classroom. Some children have such severe problems that they can be helped only in small groups or on a one-to-one basis. Lack of provision of such programs would result in failures that could have been corrected in the school.

Many remedial reading programs have been established to provide small group instruction by experienced and competent teachers. There is need in these programs for special attention to diagnosis and planning. These children have many needs and interests, and curriculum must be planned by the teachers from a variety of materials available since no one program meets the needs of all children.

Children in remedial reading classes tend to have a short attention span, so planning should include a variety of materials and activities for each session. Diagnosis should seek to determine the achievement of children in such areas as vocabulary, word attack skills, comprehension, oral and silent reading, and recreational reading. Also, teachers need to be

sensitive to the problems of each individual. Then lesson plans can be developed that truly meet the needs of each child.

One-to-one clinical instruction by highly trained teachers is very expensive and, thus, rare. Yet, many children cannot be helped without highly trained professional reading clinicians working with them on an individual basis. A skilled clinician can diagnose the reading problem, help the child correct many serious problems, and work with the remedial and classroom teachers and parents to help children solve their reading problems.

Summer classes can be organized to help children catch up during a time when other students are out of school. Many schools are empty during the summer months, and excellent teachers are available to help children in a relaxed summer atmosphere. Some children need more time than others; and if appropriate methods and materials are used, children can improve their reading ability during the summer. The summer months can also be used to prevent loss in reading ability. One study (*14*) showed that children who had just completed the first grade lost about 20 percen of their reading ability during the summer and that boys were lower than girls in achievement, a fact shown in many studies (*6*). A television program utilizing a workbook was presented to children 40 times, one-half hour each day, during the next summer. This experimental group had no overall loss during the summer, and those children who watche ' over half of the programs actually gained as a whole in reading ability. Also, boys made higher percentage gains in test scores in the program that was designed especially to interest them.

Volunteers can be used very effectively with children who need reading help. College students, parents, and other adults may work with schools in tutoring programs. Upper grade children can help lower grade children learn basic sight words, can work with them in workbooks or other skill books, and can listen to children read aloud. The diagnosis of children's reading problems and the planning of the methods and materials should be done by teachers, but many good and wholesome tasks can be accomplished on an individual basis by volunteer tutors.

Management of the school reading program. All solutions to reading problems do not cost more money. Reading problems can be caused by management of resources and personnel in ways that are not efficient. Schools in the United States have been the grateful recipients of federal funds which have been used to purchase many new materials. Phonics records, sight cards, skill books, workbooks, and supplementary reading books were bought with these funds. This abundance of materials brought logistical and organizational problems never before experienced in the

schools. Today, a real problem exists in getting the right material to the right child at the right time (*16*). Good management techniques call for leadership in the reading program in each school. Those schools that have a reading center, a teacher in charge of the center, and a reading committee will be in a good position to help teachers provide proper materials for children with reading problems.

If reading is important, then schools will have an environment conducive to preventing and correcting reading problems. This environment would encourage an examination of any issue or question pertaining to reading failure. The reading specialist and school reading committee would know that their work would receive prompt attention and be consequential in policy decisions. This combination of intellectual climate, curriculum priority, and decision-making style would assure that reading failure due to educational causes would be substantially reduced.

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Psycholinguistic Considerations: The Interaction of the Reader and the Task of Reading

It is appropriate to begin this discussion with the term "psycholinguistics," the study of the process of communication from the intersecting viewpoints of linguistics and psychology. It may be misleading, however, to regard psycholinguistics as a unified discipline: its theoretical models and its methods of inquiry tend to belong to one of its parent disciplines and its problems, to the other. This condition may explain why so much psycholinguistic research has found only limited application in the teaching of reading.

Awareness of psycholinguistic research

A major problem which has hampered progress in the teaching of reading has been the relative lack of sophistication of educationists in relevant aspects of both linguistics and psychology. Thus, the task of selecting a teaching method and that of evaluating a student's progress have been made more difficult and less efficient through inadequate understanding of the nature of language. The continuing controversy among teachers regarding initial teaching approach, depending often on understanding of grapheme-phoneme regularity of English, indicates that available studies by Venezky (*18*) and Weir and Venezky (*19*) have not had great influence. A survey of diagnostic reading tests shows that arbitrary classification of reading errors (substitutions, reversals) is common, although useful studies have been made which utilize linguistic models. The works of Clay (*5*) and Goodman (*8*) provide the teacher or diagnostician with more than an empirical description of oral reading errors. A reading test which utilizes a theoretically based classification of reading "errors" might well provide the teacher with information more suggestive of appropriate teaching strategies.

Reading as language

Though much psycholinguistic research has concerned oral language, there has been less emphasis on reading as a language activity. Psycholinguists have described the child's acquisition of oral language but have said less about how the child learns to read. Teachers have been aware that "reading" means different things to different children in different settings. But teachers have lacked an adequate theoretical framework to describe these differences. Recent theoretical discussions such as those of Goodman (*7*), Ryan and Semmell (*17*), and Wilkinson (*20*) are valuable contributions with practical implications yet to be realized.

The reader as a communication unit

On the other hand, the psychologist approaching language has contributed greatly to our understanding of the reader. Perhaps the most influential development has been the publication and widespread use of the Illinois Test of Psycholinguistic Abilities (ITPA) (*11, 12*). In the ITPA, Kirk and McCarthy have adapted a dynamic model of language behaviour proposed by Osgood and used it to describe areas of language functioning with the intent of specifying those areas which may be crucial for a particular child in a particular language task. The ITPA has proved invaluable in diagnosis of reading disability and no less important, in guiding the development of instructional materials and programs (*3*).

The ITPA and intelligence

The ITPA has a superficial similarity to traditional measures of intelligence, such as the Wechsler Intelligence Scale for Children (WISC), in that a number of tests correspond closely, e.g., WISC Digit Span and ITPA Auditory Sequential Memory, WISC Similarities, and ITPA Auditory Association. Also, there is a high correlation between the ITPA measure Psycholinguistic Age (PLA) and the Stanford-Binet Mental Age, so that an estimated Mental Age may be obtained from the ITPA (*16*). However, there is a fundamental difference in that the ITPA is based upon a psycholinguistic model rather than clinical, empirical, or statistical considerations used in traditional measures of general intellectual ability. Thus it is possible to examine the relation between reading and intellectual variables which belong to a theoretical framework.

Bateman (*1*) discusses implications of the higher predictive validity of the integrative level subtests of the ITPA with respect to reading. Problems arise through misinterpretation of the significance of the usual correlation

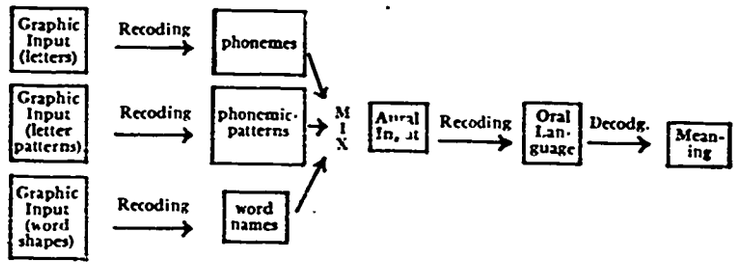
between intelligence and reading tests (r = 0.6 to 0.8). McLeod (*14*) has carefully detailed the pitfalls of estimating reading expectancy using measures of intelligence. Instead "it is necessary to locate and identify the stage of development of skills that are relevant to the learning deficiency."

A major task remaining is the linking of psycholinguistic models of the learner to psycholinguistic theories of the reading process.

Reading acquisition

Goodman (*7*) has proposed a model for reading acquisition which allows for change from initial oral and silent reading to adult reading. At Proficiency Level 1, reading involves recoding the graphic input to obtain an aural input which is further recoded into oral language. This matter is then decoded (i.e., the meaning is obtained) by the processes which the child has used in spoken communication.

Proficiency Level 1



Reprinted from *The Psycholinguistic Nature of the Reading Process* by Kenneth S. Goodman by permission of the Wayne State University Press

At Proficiency Level 2, the aural input is achieved essentially simultaneously with the graphic input, and a single recoding stage occurs, followed by decoding of the oral language to obtain meaning. At the third level of proficiency, the graphic input is decoded directly without overt recoding. Indeed, a reader of this competence asked to read aloud would, Goodman avers, follow this by encoding to produce an oral output which might not exhibit a one-to-one correspondence with the original graphic input.

Thus, in further studies of reading it will be valuable to describe the

stage of proficiency achieved by the child. And whatever theoretical positions are adopted with regard to the nature of the reading process and to the functioning of the learner, there needs to be an intersection of these two. The present cognitive structure of the child needs to be considered when planning activities to increase his reading proficiency.

A case study

In a current investigation into the pattern of reading behaviour of children in early second grade, it was clear that most children were at Proficiency Level 1. However 3 of 50 children exhibited an interesting pattern in that their word recognition and prose reading skills were far in excess of their age and grade standards and, more significantly, in that their reading comprehension was much lower, at about age standard. Only one of these three was above average in ability (IQ = 124), the others having average intelligence.

It appeared worthwhile to examine the pattern of ITPA profiles and the reading characteristics of these children. Since each showed a similar profile, only one of these children will be discussed in detail. It should be recognized that while some differences in subtest scores are reliable according to the criteria laid down by Paraskevopoulos and Kirk (*16*), caution is needed in drawing conclusions more widely until data based on adequate samples are available.

Gary P.—a grade two boy

Reading accuracy. Gary had a Chronological Age of 6 years 10 months. He was tested four months into his second year of school. He was assessed at 8 years 5 months on the St. Lucia Graded Word Reading Test (*1*). This measure combines sight vocabulary and word attack skills, many words being irregular according to normal "phonics" criteria.

Some errors were in stress:

e.g. canary → 'kænari

others showed recognition of morphemes.

e.g. appeared → a'pead

His performance on an oral prose reading test, the Neale Analysis of Reading Ability (*15*), was even better. On Reading Accuracy his score was 9 years 3 months. He made no errors on passages appropriate to his age; on later passages some errors of stress appeared along with errors in

one part of complex words. On the most difficult passage he attempted, Gary mostly failed to attempt words within the four seconds allowed. This performance was interpreted, not as a breakdown in the first recoding task,

graphic input → phonemes or phoneme patterns

but an inability in the second recoding task

aural input → oral language

since the words were probably not part of his own oral language.

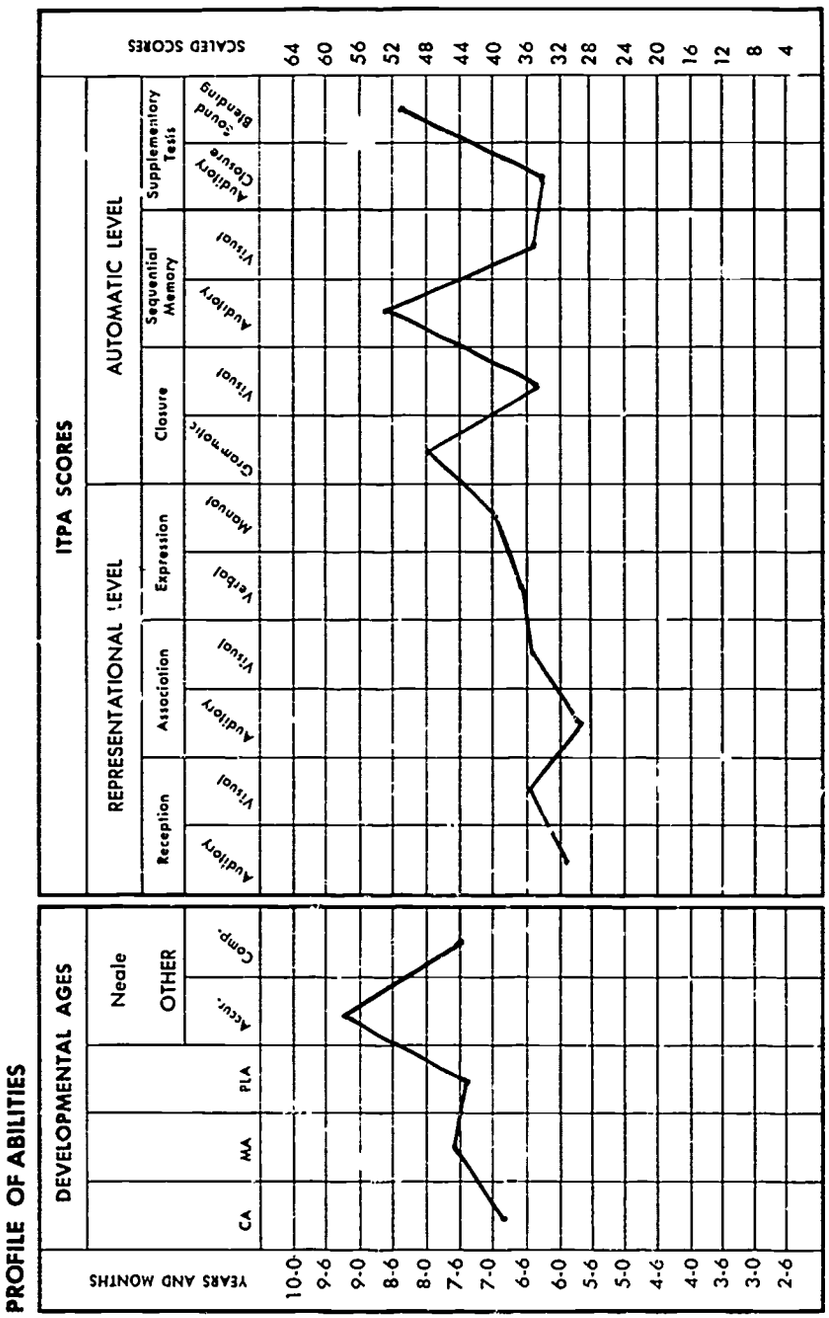
Thus words like *disciplined, adjacent,* and *triumphantly* were refused, and he recognized the component morphemes in *knowledge.*

Reading comprehension. The Neale test gives a Reading Comprehension measure by the use of questions about the passages. Georgiades (*9*) criticizes this measure as being simple recall, but its validity is probably adequate except where large numbers of refusals occur.

It seemed significant that Gary was unable to answer 5 of 12 questions on the two passages which he had "read" aloud (recoded) without error. Thus his Reading Comprehension score of 7 years 6 months was not greatly above his Chronological Age.

In terms of Goodman's model it seems that Gary had mastered many of the recoding skills of Proficiency Level 1 and was perhaps moving toward Proficiency Level 2. However, his decoding of the oral language he had produced was little above age expectancy. At this point it is valuable to examine Gary's performance on the ITPA (see Profile of Abilities) in order to interpret these discrepancies of function.

Psycholinguistic abilities. Gary's overall Psycholinguistic Age was 7 years 5 months, and his estimated (Binet) Mental Age, 7 years 7 months. This datum corresponds to an IQ of 110, within the normal range. Gary's Psycholinguistic Age, Mental Age, and Reading Comprehension Age were all ot the same order. The ITPA profile showed significant strengths in grammatic closure, auditory sequential memory, and sound blending. Some weakness was observed in auditory reception and auditory association. It may be supposed that Gary's strong auditory memory and sound blending skills have contributed to the phonic ability shown on the St. Lucia test. Likewise the high performance in oral prose reading (accuracy) on the Neale test may be due to Gary's ability to make use of the redundancies of oral language. Probably Gary's high performance on the Neale Accuracy scale was due more to nonmeaningful syntactical factors than to semantic factors, especially since his scores on Representational Level tests were not high.


PROFILE OF ABILITIES
DEVELOPMENTAL AGES
CA
MA
PIA
Neale
OTHER
Accur.
Comp.
ITPA SCORES
REPRESENTATIONAL LEVEL
Reception
Association
Expression
AUTOMATIC LEVEL
Closure
Sequential Memory
Supplementary Tests
Auditory
Visual
Verbal
Manual
Gram-matic
Auditory Closure
Sound Blending
YEARS AND MONTHS
10-0
9-6
9-0
8-6
8-0
7-6
7-0
6-6
6-0
5-6
5-0
4-6
4-0
3-6
3-0
2-6
SCALED SCORES
64
60
56
52
48
44
40
36
32
28
24
20
16
12
8
4

Further studies of children at different stages of reading proficiency are needed to identify those psycholinguistic skills which are prerequisite for mastery of each component of the reading process.

Implications for research and teaching

Previous research relating models of the reader (such as the ITPA) to reading has usually been concerned with discovery of the psychological correlates of reading disability. The children tested in such studies have usually been in difficulty with some or all aspects of reading at Proficiency Level 1. With such children, whatever their age, it would seem appropriate to relate ITPA strengths and deficiencies to the type of reading difficulty shown.

Reading tests

Research and development of reading tests are indicated in the following areas:

1. Attainment tests for oral and silent reading as appropriate for each of Proficiency Levels 1, 2, and 3.

2. Diagnostic tests for oral reading which permit analysis of difficulties in each "recoding" task and in "decoding." It may be that the inadequacy of present methods of testing oral reading comprehension resides not in their being tests of recall but in the confounding effect of the errors made and the corrections supplied by the examiner.

3. Diagnostic tests for silent reading. Cloze-procedure tests such as the GAP Reading Comprehension Test (*13*) have the blanks selected so as to be completely redundant to competent channels of communication. However, in this sentence from the GAP, Form B, the effect of linguistic context is clearly seen.

"By her bed there was a little table to put a book or a toy . . . ."

Here many children are so influenced by the immediate context as to supply a word like *bear* rather than the correct response, *on*.

Providing suitable linguistically-based descriptions are used, tests based on the "cloze" procedure should prove useful for more than measuring attainment.

Planning remedial programs

Diagnostic information about children with reading disability has tended to be confined to describing the psychological factors which differ-

entiate these children from those not causing concern. Researchers have tended to relate these correlates to aspects of the child's history in an endeavour to clarify the etiology of reading disability. While it has proved valuable to develop the psycholinguistic deficiencies of these children (*2*), and improvement in reading has resulted, research is needed to relate diagnostic information more closely to the actual pattern of reading proficiency. In this way, the teacher may plan with more certainty that effective learning will occur. Our aim should be that differential diagnosis leads to prescriptive remedial teaching.

Choice of reading approach

There does not seem to be any answer yet as to which method of teaching reading is best, unless it is that the teacher is herself the significant factor. Further research on the nature of the reading process and on the skills, understanding, cognitive structure, and affective characteristics of the child is clearly needed. The good teacher is the one who can solve what Hunt (*10*) called the "problem of the match."

> . . . this notion of a proper match between circumstance and schema is what every teacher must grasp, perhaps only intuitively, if he is to be effective.

Hunt draws attention to the need to be continually concerned as to the goodness of fit as learning and maturation change the existing cognitive structure. Thus, the teacher needs an adequate framework for understanding the reading task, the characteristics of the child, and the interaction of these. Indeed, it is desirable that the teacher be shown methods for evaluating these so that more than an intuitive measure of the match can be obtained.

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Mental Capacity Problems

Ann at 14 years 8 months and in grade nine has a writing problem; when she writes fast, she writes badly. In point of fact, her problem is much wider. She has an average of 46 percent, whereas her whole class scores 62. Recorded on her report is, "Ann is not giving of her best, despite encouragement. Allowances have been made for her weakness in spelling." The question is, "What is Ann's best and should other allowances be made or actions taken?"

What the global figure hides

Among other things, Ann was given a Wechsler Intelligence Scale for Children (WISC), and global results were as follows:

Verbal Intelligence Quotient (VIQ)	118
Performance Intelligence Quotient (PIQ)	79
Full Scale Intelligence Quotient (FSIQ)	99

Prima facie, what do these figures tell us? Being quite factual, we can say the following:

> In the "verbal" section she equaled or bettered 88 percent of her age group.
> In the "performance" section, she equaled or bettered 8 percent of her age group.

Overall, she equaled or bettered 47 percent of her age group. Then we can make some value judgments and say that she performed *well* verbally, *very badly* in the performance section, and gave the overall performance of an *average* girl—a being, by the way, who does not exist. The devotee of the clinical pattern will seize on the 39 point discrepancy between "verbal" and "performance," but let us have a look at a little more of the scatter of performances.

Subtest scores. One is well aware that short subtests are notoriously unreliable; but in these enlightened days one must look at specifics, and the specifics of Ann's test may suggest further enquiries. The deviation

IQ makes it possible for the psychologically unsophisticated to get some meaning out of IQs. Similarly, the mathematics of the subtests makes the latter intelligible. Results of subtests are therefore set out with short comment, score, and percentile.

	Scale score	Percentile
Information (general knowledge)	13	84th
Comprehension (? social intelligence)	10	50
Arithmetic	10	50
Similarities (generalization, classification)	17	99
Vocabulary	14	91
Digit Span (repetition of digits)	2	0
Picture completion (finding what's missing)	8	25
Picture arrangement (telling a story in pictures)	7	16
Block design (making a design with blocks)	5	5
Object assembly (jigsaws)	10	50
Coding (putting signs for digits)	5	5

Here it can be seen that on one subtest, with a percentile rank of 99, Ann really is a population beater. On another, she is on the lowest percentile possible. The first is supposed to require a great deal of intelligence; the second is mere repetition from memory. Which indicates capacity? If she beats 25 percent in Picture Completion, 16 percent in Picture Arrangement, and 50 percent in Object Assembly, why does she beat only 5 percent in Block Design? Her coding deficiencies may be reflected in her spelling; some of her responses were as follows:

mechanical	macanical
anxious	ansous
financial	feenancial
genuine	genuion
interfere	interffear

McLeon (*9*) has something to say about this. And why is she so deficient at repeating digits? Has she little auditory memory? Or does she not really pay attention? Or do digits, being mathematical (10 percent in mathematics) just frighten her?

These are all "mental capacity" problems. This paper does not provide the answers. It does, however, suggest lines of enquiry which must be made in the clinical situation.

Frustration level. Incidentally, in discussing Ann's problem, one notes that her word recognition "age" is a little more than thirteen years and her spelling "age," 12 years 3 months. Remember that in this type of test, this is "frustration" age. Teaching should occur at a *functional* level which may be considerably below the level of the test result.

Where there's cerebral damage

When Paul was two days old, he had a cerebral hemorrhage in the left occipital area. Later, a mild epileptic focus was demonstrated, and Paul was mildly spastic though not to a disabling degree. The parents said that a pediatrician had advised concerning "irreparable destruction of tissue with no visual memory and no prospect of obtaining it." Paul was later diagnosed as a *visual agnosic*. At 6 years 4 months, he could not recognise classmates unless they spoke. He could not recognise his mother if she stood with another woman. In three dimensions, where there was ambiguity, he made mistakes: a pencil might be a stick; a bottle, a can. He recognised no pictures at all. Some examples follow. The picture is on the left; Paul's response is on the right.

clock	man's head
bed	tree
table	bridge
leaf	pen
basket	house
gun	fence

Paul's first "intelligence" test was the Revised Stanford-Binet Intelligence Scale, Form L, on which, at 6 years 4 months, he had the following result:

Mental age	3 years 8 months
IQ	58

Our centre thought that the preceding result should be treated with great reserve because of short attention span, negativism fatigue, visual deficiency, and some silly behaviour. Incidentally, five clinicians saw this boy to make sure that no one person was being deceived by Paul's behaviour. This approach seemed desirable as there were some mysterious aspects. For instance, he failed to draw a square but produced something that was part square and part circle (he had successfully drawn a circle). Then he failed to draw a diamond, but his response included elements of a circle, a square, and a diamond. He was perseverating. He could not do the formboard looking at it, but succeeded when he did it by touch.

Here was a boy who could not recognise pictures and who had an IQ which put him well within the mental deficiency range. What was his potential for school work, and particularly for reading? The answer given by many was "none."

Later, Paul was given a WISC, his IQ being:

Verbal	85
Performance	44
Full Scale	58

The centre took the standpoint that it would admit that cerebral damage might inhibit sensation but that any higher operation was a matter for the whole brain.

For some years the centre saw Paul only occasionally, leaving the administration of a suitable program to the school. The centre provided the school with advice. In his twelfth and thirteenth years, however, Paul was seen and taught by the centre once every three weeks. When he was 12 years 10 months, he had a word recognition age of 9 years 5 months and a spelling age of 11 years.

Some will ask how words came to be recognized, while pictures remained a mystery. Of course all modalities were used, but the emphasis was on the *visual*. Teachers were sorely tempted to teach Paul as a blind child, using touch. However, due in part to the encouragement of Kirk (7), Paul's main teacher persisted in trying to establish interpretation of the significance of what was *seen* (Paul had meantime been given the Illinois Test of Psycholinguistic Abilities—ITPA). Kirk's observations included:

> I have a tendency to try rather intensively to correct the disability if possible before giving it up and emphasising the areas in which the child is more superior. . . .
>
> I have an idea that children who have these basic disabilities due to some brain damage tend, in their growing stages, to avoid activities requiring these areas of disability, thus producing, as they grow older, a psychological lesion over and above the physiological one.

The approach was frankly Skinnerian, with successive approximations, progress from photographs to line drawings, sorting, matching, labeling, and drawing—all with suitable verbal and motoric reinforcement.

Paul's mental capacity might have been seriously underestimated. As it was, what he had was used to the best advantage.

Dyslexia

The definition of dyslexia, as understood here, is that of the Research Group on Developmental Dyslexia and World Illiteracy of the World Federation of Neurology in April 1968:

> *Specific Developmental Dyslexia* is a disorder manifested by difficulty in

learning to read despite conventional instruction, adequate intelligence, and sociocultural opportunity. It is dependent upon fundamental cognitive disabilities which are frequently of constitutional origin.

The presence of this disability confounds the capacity estimates which might be based on conventional tests of general ability. Performance in reading and related subjects may be grossly affected. An eleven-year-old girl wrote, "The gan ask quair abber the gairsek of there seake cualls." This is translatable into, "They are beginning to ask questions about the geography of their separate countries."

The 31st to the 40th words in Schonell's Spelling List S1 are the following:

ground	lowest	brain	write	amount
noise	remain	hoped	worry	dancing

An intelligent boy 12 years 10 months wrote these:

ground	loest	brane	rite	amount
noise	remane	hopet	worry	danceing

Although some will not agree, the writer does not consider this a dyslexia performance. The same cannot be said, however, about the responses of another intelligent boy of 14 years 10 months, who wrote:

gramed	londer	breid	write	atmond
nontt	remay	hoop	want	dence

He also wrote:

serbnod	for	surplus
loneill	for	liquid
duante	for	damage
atcallen	for	accordance
ealdn	for	else

At 14 years 10 months, this boy is not far from employment after some of the "tribal" tests we impose on adolescents before they depart from school. When one considers mental capacity problems, one is appalled at the reduction in capacity due to a specific disability. For some people, an estimate must be postponed.

Minimal cerebral dysfunction

Readers may suspect that the writer might continue ad nauseam considering the effects that all specific difficulties like blindness or deafness might have on mental capacity. Fears can be allayed by the statement that only two more divisions will be considered—the child with "minimal

cerebral dysfunction" and the child with no obvious cause for trouble.

"Minimal cerebral dysfunction" is a convenient phrase. It does not imply cerebral injury, merely failure in function. Commonly, this dysfunction is characterized by nine criteria: average or better intelligence, specific learning disability, deficiencies in coordination, under- or overactivity, impulsivity, emotional lability, attentional deficit, soft neurological signs, and perceptual deficits. David at 5 years 6 months, a specialist's son, has an IQ above the average mark and an ITPA "age" 10 months above his chronological age. Without assuming a medical stance and pronouncing on "soft neurological signs," the writer can state that David fulfills the other eight criteria. He scores nothing on reading and spelling tests for grade one. He demonstrates the signs and symptoms listed previously and, according to his mother, is overactive to the point of complete exhaustion. He needs a one-to-one teacher-pupil ratio; and as this is approximated, there is already noticeable progress. Capacity can be drastically modified by minimal cerebral dysfunction.

Where diagnosis is difficult

Rob is eight and one-half years old and in grade three. He has an average IQ, but his "language age" according to the ITPA is about 12 months behind. He has had good teaching; his parents are interested and intelligent; and he has had some speech therapy and remedial teaching. He reads none of the St. Lucia Word Recognition Test (*1*). The first ten words are *school, little, tree, milk, book, flower, playing, road, light,* and *train*. His spellings of the first ten words in another list are as follows:

net	can	fun	top	rag
m	c k	fot	tao	sao
sat	hit	lid	cap	had
sat	to	sat	f d	ast

(Alert clinicians will note the perseveration.) A social history gives no indication of dyslexic development except that his language was immature when school started. Rob is not immature outside of school.

Here, there is reason for some backwardness, but not for the backwardness Rob exhibits. He knows only half the alphabet and can give the phonic values of only half the alphabet also.

Other diagnostic tests were of no help except that in a pure-tone audiometric test his responses first indicated substantial hearing losses in one ear. The second time through, this ear was normal. The nature of the pure tones had been adequately demonstrated. Was he "with" the exam-

iner? Is Rob's performance due to immature speech? (Speech start was normal.) Is his performance due to attentional deficit? Or, do we look to psychoanalytic speculation to give us the reason for these?

The normal class

Readers might be interested in the correlations of two tests of general ability and tests of reading, spelling, and mathematics (*6*). With a verbal pencil and paper test, the *Junior B* (*2*), indices were as follows:

Silent Reading [Gap] (*8*)	0.719
Silent Reading [Schonell R 4] (*10*)	0.742
Spelling [Schonell S 1] (*10*)	0.675
Mechanical Arithmetic [Moreton M] (*4*)	0.383
Problem Arithmetic [Moreton P] (*5*)	0.703

With a nonverbal pencil and paper test, the junior nonverbal (*3*), the figures were 0.476, 0.526, 0.361, 0.340, and 0.534, respectively.

The impact of the "new math" affected the correlation of general ability with mechanical arithmetic. Correlations with the verbal test are substantial, except for mechanical arithmetic; and the correlations of the nonverbal test with silent reading and problem arithmetic are substantial also. These correlations are not contaminated with chronological age, as the 400 children were all in grade four. Within the grade, all correlations with chronological age (except one) were significant, small, and negative. Incidentally, the tests of general ability correlated 0.653.

General

The old nature versus nurture argument concerning intelligence seems fortunately to have died down, and there seems to be consensus that heredity contributes about two-thirds of the variance and environment and "unexplained" the rest. More important is the development to the utmost of potential. The distribution of mental capacity in the community is generally represented by the normal curve. Purists will insist that this mark is not strictly correct, but for all practical purposes we can accept the normal curve. Speculatively, if on the x-axis we plotted "percentage of possible development achieved," we probably would come up with a normal curve—few would be completely undeveloped; few would be developed to the limit; and the bulk would be in the middle. As educators, we should all work to shift the mode to the right.

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Psychological and Motivational Probiems

I am interpreting the topic "Psychological and Motivational Problems" to mean the interplay between the affective or emotional life of the child and his progress, or lack of progress, in learning to read. I shall discuss the following topics: 1) reasons why progress in understanding the relation between emotional adjustment and learning to read has not been faster; 2) the frequency of emotional maladjustment among children with reading disabilities and the frequency with which it has causal significance; 3) types of emotional problems found in poor readers; 4) the family backgrounds and influences of poor readers; and 5) the place of psychotherapy in the treatment of reading disability. It is impossible to cover the literature throughly in a paper of this length, so I have selected recent contributions that seem to me to be significant.

Research on the relationship between personality difficulties and reading has made slow progress during the past twenty years. One reason for this condition has been the tendency in much of the research to try to establish what personality traits are common to children with reading disabilities, usually as contrasted with a group of normal readers. Back in 1954 I pointed out in two papers (*13, 14*) that such efforts had been sterile and were likely to continue to be sterile because of the wide variety of personality patterns to be found among poor readers. When one combines overaggressive children with withdrawn children to get an average, the opposite trends cancel one another and the resulting average has little meaning. I recommended at that time a research effort to identify meaningful subgroups within the reading disability population, after which efforts to determine traits common to a subgroup might be more fruitful. Yet, studies in which a total reading disability population is given a personality test and compared with another population continue to be published. We should stop wasting time, effort, and money on such useless endeavors.

A second barrier to progress has been a persistent tendency to confuse correlation with causation. For example, several recent research studies reveal that poor readers tend to be more anxious than normal readers.

Cowen, Zax, and Klein (*7*), studying nine-year-old children, found anxiety as revealed by a personality test to be related to teachers' ratings of maladjustment, to a discrepancy between self-concept and self-ideal, to poor showing on sociometric measures, and to have small negative correlations with reading. Nicholls (*29*) found that in New Zealand thirteen-year-olds with high test anxiety tended to have lower reading and intelligence scores. And Woolf (*39*) found that college freshmen who were poor readers scored significantly lower than good readers in ego strength and higher in anxiety. These findings simply show that more poor readers than good readers are anxious, but it does not tell us whether in a particular individual his anxiety interfered with learning to read, or if he became anxious because of awareness of his failure, or if both poor reading and anxiety were induced by some third factor.

Studies of social status show that poor readers tend to rank low in sociometric choices made by their classmates. Bloomer (*5*) found that children rejected by their classmates tended to be lower in IQ as well as in reading, and many of them had repeated one or more years in school. Applebee (*2*) found that sociometric ratings were correlated with reading scores as early as the first grade. But one cannot conclude from such evidence that low social status tends to cause reading disability nor that poor reading tends to get one looked down on by his classmates, although the latter seems more generally plausible. Bloomer's further finding that rejected children had more trouble with reasoning tasks than with associative learning may be related more directly to their lower intelligence in his study than to their rejection or their poor reading.

A third persistent problem interfering with research progress has been the lack of ways of measuring emotional maladjustment that have demonstrated high validity. Both personality tests and ratings fall far short of perfection, and often two or more different measures will fail to select the same individuals as maladjusted. For example, Carrithers (*6*) had bright preschool children rated for adjustment by a psychologist, a social worker, and a teacher. There was much disagreement among the three raters. The children identified as having emotional difficulties were found later on to get off to a slower start in reading. This is one of the few studies in which maladjustment is known to have preceded the reading problem and gives hope that further studies in which specific kinds of emotional problems are identified before school entrance and followed up through the early years of school will greatly increase our understanding of the dynamics of reading failure.

There have been many attempts to state the frequency of emotional disturbance in children with reading disabilities and the proportion of

cases in which the emotional problems had causal significance. Those working in clinics generally tend to give higher estimates than those working in school situations. Most clinical estimates indicate that 90 percent or more of their reading disability cases show some emotional disturbance; this result is true not only in Europe, as shown in Linder's work (*21*), but also in the United States. One writer has stated that if a child who has consistently failed in reading does not seem to be upset by his failure, there must be something wrong with him.

There is fairly close agreement that emotional disturbance has causal significance in about one-quarter of reading disability cases. Gates (*9*) estimated 25 percent back in 1941. Robinson (*30*) reported that emotional problems seemed to have causal significance in her cases more often than neurological problems did and were second only to visual defects. Malmquist (*23, 24*) concluded that his Swedish cases tended to be low in self-confidence, persistence, ability to make contacts, concentration, dominance, and stability and that nervous traits may have been contributory causes in 23 percent. Gold, Huebner, and Bice (*10*) identified emotional problems as major causal factors in 23 percent of 154 severe reading disability cases in central New York and as minor reasons in another 22 percent. Of course, the frequency will vary somewhat with the population studied.

There have been several studies of the kinds of emotional maladjustment to be found in children with reading disabilities. Linder (*21*) studying 50 clinical cases in Zurich, found only 10 percent to be normally adjusted; 44 percent were nervous, in attentive, volatile, and unconcentrated; and six percent were overactive, disturbing, and disobedient. Silver, Hagin, and Lubin (*33*) studied severe reading failures from first and second grades in a disadvantaged urban area of New York City and found that 8 percent were schizophrenic. Stavrianos and Landsman (*34*) studied the Rorschach patterns of 160 boys who were deficient readers and had perceptual problems; the testers found a variety of patterns, including outer restriction, inner restriction, constriction, acting out, and perseverance.

Harris (*17*), in a major study at the Institute for Juvenile Research, compared 100 disability cases with 100 normal achievers and reported that poor readers were likely to be either aggressively hostile or extremely submissive. He drew a relationship between parental pattern and child behavior. "If his parents tended to project blame onto scapegoats, he was likely to be highly aggressive; if they guiltily took on too much self-blame, the son was likely to be overly submissive and anxious to please."

Strickler (*36*) described several patterns of inappropriate parental be-

havior to be found in parents of reading disability cases: seduction, neglect, and ambivalent alternation between overprotection and rejection. He also summarized the psychoanalytic explanation which places emphasis on maternal dominance producing an inhibition of sexual curiosity, which spreads out into a more generalized inhibition of learning. McGinnis (*25*) studied the attitudes of the parents of sixth graders who were two years above or below grade level in reading. She found that the parents of superior readers were more likely to foster independence and to encourage children's communication, did not attempt to force growth, and refrained from unduly restricting their children. The parents of poor readers tended to show contrasting attitudes. Mutener and Powell (*27*) found that achieving readers tended to identify with their parent of the same sex—a boy with father and a girl with mother—while underachieving boys and girls tended to interact more with their brothers and sisters.

The ability of parents to provide a home environment conducive to good learning was the subject of a study (*18*) of 2,000 first grade Negro children in Chicago. The children were rated by both teachers and psychologists, and systematically chosen family samples were interviewed. Fifty-nine percent of the children were living with only one parent, and the percent of maladjustment was far higher in these children than in children living with both parents. However, children with a mother and a grandmother in the home were as well adjusted as those with a mother and a father. About one-third of the mothers were dependent on public welfare, and 85 percent of their children were maladjusted—a distressingly high figure. In addition to low income, the mothers who described themselves as nervous or depressed tended to have maladjusted children.

It is reasonable to conclude that maladjusted parents tend to bring up children who have learning problems in school, as well as emotional difficulties, and that lack of economic self-sufficiency is a common accompaniment of parental maladjustment. The complex interrelationships among these variables may be traceable in individual families if one uses intensive multidisciplinary procedures.

Two interesting papers about the difficulties that professionals have in communicating with the parents of children with learning disabilities were given on the same program (*37, 4*). One presented a parent's viewpoint; the other discussed parental communication problems from a professional's point of view. Both stressed that self-protective behavior sometimes makes it impossible for a parent to believe what he is told, and sometimes he shows a kind of psychological deafness to diagnostic

information. Denial, distortion, and projection of blame onto others were described as parental devices which make effective communication difficult.

Case studies, rather than statistical research studies, are generally more rewarding in the insights they can provide on the dynamics of parent-child relationships and the interplay between emotional problems and learning problems. The literature of published case studies of reading disability has recently been considerably enriched.

Lieben (*20*) wrote up a case involving psychotherapy based on Adlerian theory. Emphasis was placed on recognizing the function of the disability in the individual's lifestyle. Michal-Smith, et al (*26*), described a family in which all four siblings had learning difficulties, three in reading and one in spelling. Both parents were professionals. The father was described as lacking in understanding, rigid, and setting very high standards; the mother was overprotective. The three younger children had been given a combination of psychological and educational therapy and were succeeding in college or secondary school; the oldest, who was not treated, dropped out of college. Although the authors indicated the possibility of a genetic predisposition in this family, they obviously considered the treatment to have been effective.

Strickler (*36*) described a thirteen-year-old who was still underachieving after several years of remedial tutoring and four years of individual psychotherapy. John's pattern was a passive-resistive one with outbreaks of vandalism. Family therapy was started, bringing together John, his sister, and both parents in joint sessions, which resulted in marked improvement in six months.

Several ways of using psychotherapy in conjunction with remedial reading are described in a new collection called *Casebook on Reading Disability* (*15*). One of the cases, written by Whitsell, Buckman, and Whitsell, illustrates the combined use of drug treatment, remedial teaching, and family therapy. Jimmy was impossibly distractable and disruptive until treatment with the drug Ritalin made it possible for him to concentrate and learn. After three years of remedial teaching his reading was up to grade level, but his mother then complained for the first time that Jimmy had been stealing for years. He was also failing in school, despite his improvement in reading. In conjoint family therapy Jimmy and his parents began to be able to express their mutual hostilities and resentments and to begin a more constructive relationship. His stealing stopped, and his work in school improved.

Abrams and Belmont (*1*) reported a comparison of eight boys with severe reading disability attending a full-time remedial school with a

matched group attending public school. Half of each group had group psychotherapy, and half had individual psychotherapy. Three-quarters of those getting full-time remedial schooling and psychotherapy showed improvement in social and emotional adjustment as well as in reading, a significant advantage over the public school group. Individual psychotherapy showed a slight and nonsignificant advantage over group psychotherapy. Unfortunately, while the children were fairly well matched, the authors reported differences between the two groups of parents which may have influenced the results.

Summary and conclusions

Progress in understanding the interrelationships of emotional problems and reading disability has been slow. There is good reason to believe that emotional maladjustment is present in most cases of reading disability and that it has played a significant role in the causation of about one case out of four. The types of maladjustment found in children with reading disability are many and varied. Recent reports stress acting-out hostile behavior patterns; submissive, passive-resistive patterns; and a small but significant proportion of schizophrenic and schizoid patterns.

Parental characteristics are significantly related to the occurrence of maladjustment in children, and a beginning has been made in relating particular emotional patterns in parents to the kinds of maladjustments developed by their reading-disabled children. Going from causation to treatment, a number of recently published case studies illustrates possible combinations of remedial teaching with various forms of psychotherapy; and there are some indications that family therapy may at times be more effective than treatment for the child alone.

Sampson (*31*), reviewing the literature on reading and maladjustment, recommended that further research should be concerned with clinical study of small but well-defined groups at different ages and IQ levels. I concur in this recommendation, adding that groups should also be studied in different sociocultural populations. Much further research is needed before we can claim a real and detailed understanding of the relationship between motivational factors and reading disability.

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RESEARCH CONTRIBUTIONS

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Research on Methods of Teaching Reading

An invitation to speak on "Research on Methods of Teaching Reading" to a world congress on reading is indeed a sobering one. While I have participated in the preparation of various summaries and review of reading research for a number of years, as a typical American I fully recognize how "linguistically-bound" I am by the English language. For this reason I particularly admire and welcome Malmquist's recent review of the past ten years of research in reading in Europe—one which demonstrates facility with many languages and sources not readily available to some of us in the United States (*12*). I am also cognizant of how limited my acquaintance is with the literacy problems of other continents and cultures save through such sources as Gray's magnificent UNESCO study of reading and handwriting (*9*), McCullough's helpful guide to the preparation of textbooks in the mother tongue (*15*), and other fugitive publications.

Today, rather than review in detail research on methods of teaching reading which I have done to some extent elsewhere (*10*), I propose to examine the question of the nature and meaning of method in teaching reading—specifically, method in beginning reading instruction. In so doing, I hope to clarify the characteristics and interrelationships of several levels of research endeavor in the study of the teaching of reading.

What, precisely, do we mean by the term *method* as applied to the teaching of reading? Perhaps the most salient observation one might make today is the widespread semantic confusion attached to the term *method* itself. Thus we hear of the alphabetic method, the word method, the sentence method—ones in which the instructional unit to be stressed in beginning reading determines the label to be applied. We hear of visual, auditory, and kinaesthetic methods—techniques in which the sensory mode stressed in learning is the basis for typifying method. We hear of such diverse methods as the basal reader method, Words in Colour, and i.t.a.—approaches most surely referring to very different referents in patterning and coding reading programs. We hear of individualized

reading as a reading method—one in which the nature of the pupil-teacher relationship is stressed. We hear of analytic and synthetic methods --ones which refer to the means-end implementation of instruction. And we hear of an eclectic method—a method, if such it be, in which apparently many specific techniques and strategies are used as needed by teachers to enhance pupil progress in reading. There are many more. But such ambiguous use of the term *method* is a source of confusion to the prospective teacher in training, to the experienced teacher, to professors of the teaching of reading and, I might add, to researchers in the field of reading.

In his discussion of general teaching methods involving the human teacher, Gage (*6*) defines teaching methods thus in the 1970 *Encyclopedia of Educational Research:* "Teaching methods are patterns of teacher behavior that are recurrent, applicable to various subject matters, characteristic of more than one teacher, and relevant to learning." The referent here is clearly the communication mode between teacher and pupil, be it teacher-centered, pupil-centered, or jointly teacher-pupil-centered. The cognitive and affective variables involved in such communication are enormous. Research into the multiplicity of their effects is only in its infancy. Yet it is clear that if our research into reading methods continues to be confounded by uncontrolled teacher-pupil variables, we may indeed learn, as we have from the recent federally financed studies of beginning reading instruction in the United States, that the teacher and the total learning situation are truly important variables (*5*). This finding itself sheds little light upon the effects of reading methods.

Gage (*6*) goes on to note that

> the term "teaching method" is sometimes used to refer not to teacher behavior patterns but to curricular materials of some kind. Such use of the term reflects the indistinctness of the boundary between curriculum and teaching method. Typically, the term refers to what is taught and how it is taught, respectively, but their referents may interact and fuse.

It is with this latter interpretation of method with which most reading research has been concerned. Yet note that "what is taught"—the curriculum—and "how it is taught"—the instructional modes—are referents which indeed "may interact and fuse." (Perhaps the word should be "confuse," not "fuse.") Failure to clearly specify such referents as common goals, precisely defined, and clearly differentiated instructional procedures, again precisely defined and controlled, have continuously plagued our research efforts both in research design and in the interpretation of experimental research into methods of teaching reading. Much of Chall's critique (*1*) of research studies and materials relating to beginning reading

instruction in the United States hinges upon conflicting and often unresolved differences in the means and goals of reading instruction. It is likewise instructive to note that the most serious problem immediately encountered by a task force recently asked to design the broad outlines of a proposed series of intensive research and development investigations into the reading process in the United States was that of reaching agreement upon a tentative definition of reading! The gist of the proposed definition is one of interaction between people and print, involving those processes which lead to the attainment of meaning.

Method is indeed a process, a procedure. It involves a goal, a starting point, a route to be taken. I suggest that the search for improved methods of teaching reading would be aided by clarification of several levels of research into methods of teaching reading. One such level of research into reading method is program evaluation. This level of research is fundamentally an investigation into the total complex of general and specific methods constituting the curriculum of which reading is a part. This is at once the most challenging yet most difficult level of research in reading, for it involves problems not only in valuing and ordering the objectives of a total program in the psychomotor, cognitive, and affective spheres, but also of adequately assessing their attainment. Furthermore, so complex and difficult is it to properly assess even the short-term effects of reading programs that David Krathwahl, former president of the American Educational Research Association, has suggested that comprehensive studies of the performance of pupils *after* they have completed total reading programs may be a much more justifiable research goal in assessing reading curricula than brief comparative studies. Since program evaluation in reading is part of the total curriculum structure, it must likewise be broadly judged in keeping with the long-range goals of the school. These goals of course may vary from place to place within and between countries.

A second level of research in reading method is that of *instructional strategies*. Such strategies reflect major types of instructional programing to reach specified goals within a total reading program. Examples of instructional strategies are analytic versus synthetic methods for teaching word perception, inductive versus deductive methods for teaching reading comprehension and interpretation, and the recent application of behavioral modification principles to basic skills in reading principally through programed reading. Instructional strategies of this type and scope derive from studies in learning having to do with the whole-part problem, recent interest in "discovery" learning, and the application of the reinforcement principle of learning through immediate feedback. Since such

instructional strategies ordinarily are operative over a period of a year or more, there are complications in their assessment due to other interacting variables in the reading program. However, the goals of instructional strategies of this type are somewhat more amenable to operational definition and to clear-cut processive development. This condition should make it possible with improved research designs to assess their affects more and more definitively.

A third level of research in reading method is that of *specific reading techniques.* Ordinarily these are short-term subprocesses within broader instructional strategies in reading. They are often useful in adjusting to individual differences among learners. Specific exercises in visual discrimination, auditory discrimination, kinaesthetic reinforcement, language experience development, and transformational grammar are illustrative techniques. The value of certain of these techniques has been repeatedly demonstrated in clinical practice. The primary research problem at this level with particular reference to reading readiness has been to assess, predict, and meet specific instructional needs of children, a problem to which such investigators as Malmquist (*13*) and McGinities (*16*) have addressed themselves. Apparently it is largely in response to individual variance in these instructional needs that the term "eclectic" method has emerged to describe the range of techniques commonly employed in beginning reading programs.

In suggesting three levels of interpretation of the term *method* as applied to reading, I have, as you can see, implied certain relationships among these levels. The structure is hierarchial in form, techniques being viewed as parts of broader strategies which in turn are an integral part of the total reading program in the curriculum of the school. If the notion of interrelationships among these levels of method is accepted, several further implications would seem to follow. In the production of research, the specific levels of research must be clearly delineated, the scope of the research indicated, the operational goals spelled out, the research design appropriately selected, the gathering of data meticulously handled, the results reported adequately enough to permit replication, and the interpretation strictly confined to the data and to the level of research involved. In the consumption of research, each of these points is equally important. I would, however, particularly stress the latter point—that the interpretation of research findings be rigorously limited to data relevant to the problem and to the level of research attempted. Many consumers of research are prone to violate this principle and engage in unwarranted extrapolations of research findings from one level to another.

Sometimes what I have called specific techniques have a way of becoming major instructional strategies if not curriculum philosophies. The specific language experience approach proposed by Lee and Allen (*11*) constitutes a major strategy for teaching reading and the language arts and should be so recognized. Veatch's individualized reading approach (*19*) is in reality a curriculum philosophy calling for a different ordering of curriculum goals as well as a general method of teaching. When such specific instructional techniques are proposed as more generalized strategies or philosophies of teaching, they must of course be so recognized, researched, and assessed.

The context of my remarks thus far has related primarily to experimental research. While this is the preferred mode of much research by educational psychologists, particularly in the United States, other modes of research are useful in explanatory studies of those aspects of the reading process about which little is yet known. Significant descriptive research which may lead to marked changes in reading methods in the future are those, for example, in the linguistic field by Goodman (*7*) in the United States, Clay (*2*) in New Zealand, and Downing (*4*) in England. In each case these studies focus on the problem of gathering much needed specific data on children in the beginning stages of reading. The studies also indicate the linguistic complexities of the English language and of the child's mind. Many of the research fragments in the Project Literacy Reports (*17*) in the United States are, likewise, descriptive in nature.

A second, recent research development is the attempt to build experimental models with a view to generating more fruitful hypotheses for research in reading. Some of these are described in a recent publication by Singer and Ruddell (*18*). A research model which may prove to be of particular relevance for beginning reading research is that by Goodman (*8*), who has been instrumental in formulating the general model for research and development studies of the reading process now getting underway in the United States.

A third development which I believe has considerable significance is somewhat of a rarity in research in reading: the historical comparative study of reading method. I commend to your attention Mathews' *Teaching to Read: Historically Considered* (*14*). Mathews, a linguistic scholar, lexicographer, and editor of the *Dictionary of American English,* was prompted to trace the history of beginning reading methods, largely because of the lively debates generated by his long association with William S. Gray, Leonard Bloomfield, and other educators on the Chicago scene. His analysis of three major approaches to the teaching of beginning reading in an alphabetic language—a purely synthetic, "letters-

to-words" method, a modified synthetic "words-to-letters" method, and an analytic "words-to-reading" method—is penetrating. It particularly reveals the common error made in labeling each of the latter two methods as "word methods" and hence, by inference, analytic.

As I have previously noted (*10*)

> In this analysis of method, the essential distinction is the time at which the letters of our alphabetic language are taught. In the synthetic programs letter discrimination is taught early; in analytic programs letter discrimination is delayed. The author marshals an impressive array of historical evidence to establish the validity of his contention that the essential thrust of a method, synthetic or analytic, be considered the basic criterion for considering the relative merits of beginning methods.
>
> [Mathews concludes that] ". . . no matter how a child is taught to read, he comes sooner or later to the strait gate and the narrow way: he has to learn the letters and the sounds. There is no evidence whatever that he will ultimately do this better from at first not doing it at all" (*14*).

There is considerable experimental support, particularly by psychologists in the United States, that beginning reading method must deal forthrightly with major strategies for discrimination learning, whether this be called decoding or otherwise, as well as with strategies oriented primarily toward the attainment of meaning. Downing (*3*) has also suggested in effect that this is an important aspect of needed comparative studies between language systems differing in degree of phonetic regularity. The major problem facing both the researcher and the practitioner appears to be less one of the nature of the beginning unit of instruction in reading per se as Mathews points out than one of determining the proper balance between the learning sets for discrimination and for meaning to be developed by the beginning reader which will maximize the transferability of his developing reading skills, concepts, and attitudes to increasingly complex reading tasks.

At this point in time, research in reading at each of the three levels I have described is accelerating. I would particularly emphasize the need for broadly conceived research designed to clarify the relationships between specific techniques, broader learning strategies, and the curriculum goals and values to which techniques and strategies must be oriented for effective learning. As curriculum goals are altered in their respective emphases upon the psychomotor, cognitive, and affective aspects of experience as, for example, in the open model school, instructional strategies and techniques in reading may well differ in timing and emphasis. Given a set of curricular goals for a reading program, the most crucial problems today in research into reading method appear to be, first, the

identifying and ordering of the key instructional strategies for the attainment of such goals and, second, the comprehensive and long-term program evaluation of the summative effects of such strategies. These instructional strategies are the key learning strategies of method, based in part upon the linguistic structures and ideas the child is called upon to master, in part upon the developmental level at which the child functions, and in part upon the general model of human learning espoused. While the lack of agreement upon a universally accepted model of human learning will no doubt lead to several possible strategies rather than to a single strategy, current research into the interaction between the child as a developing, learning organism and the language he is to learn to read would appear to have particular promise for the development of more effective learning-to-read strategies which are the heart of methods of instruction.

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Research on Comprehension in Reading

This paper is a report of research on cloze procedure, a technique that researchers, reading specialists, and classroom teachers are finding increasingly useful in measuring the reading difficulty or readability of printed material.

Cloze procedure has been described by Taylor (*11*) as a psychological tool for measuring the effectiveness of communication. Basically, the procedure consists of a set of rules for constructing cloze tests over samples of written (or spoken) materials, administering these tests to subjects and scoring them, and determining from the cloze scores the degree of comprehension of the materials. The construction of a cloze test simply requires words to be deleted through a passage according to some mechanical system. A subject is asked to replace the missing words, and the number of words he correctly replaces is an index of his comprehension of the passage.

There is a sound theoretical basis for cloze scores as measures of reading comprehension. Fries (*3*) identified three layers of language meanings: grammatical structures, lexical items, and cultural meanings. Cloze procedure taps these three layers of language meanings; for, as McLeod (*7*) stated, to successfully reconstruct a message

> . . . requires a familiarity with the grammatical structure of English, an understanding of lexical meaning and, if the passages selected are concerned with a variety of experiences familiar in a given culture, they reflect to some extent "social-cultural" meaning.

The set of rules for constructing cloze tests is quite well established. Comprehensive reports by Rankin (*8, 9*) and by Anderson (*1*) reviewed studies on cloze procedure—studies carried out in the main in English speaking parts of the world with native speakers of English. There is, however, a growing body of research showing that cloze procedure may be more widely applied, for example, to English and to French learned as foreign languages (*1, 4*), to Japanese (*10*), and to Korean (*12*).

Previous studies on cloze procedure have invariably employed blanks of a standard length to denote words deleted from a passage, following Taylor's assumption (*11*) that length of blank influences "guessing." Bormuth (*2*) in his definition of cloze readability procedure states that "the deleted words are replaced by underlined blank spaces of a uniform length. . . ." The reasoning behind this assumption is presumably that the length of the blank is a clue providing additional information about the deleted word. However, it is difficult to predict the way in which this clue might operate. If a subject is very familiar with the layer of meanings carried by the grammatical structures, by the lexical items, and within the social-cultural meanings, this additional clue might be quite unnecessary. On the other hand, to the extent that a subject is not familiar with the various layers of meanings in written language, the additional clue might prove of little assistance. These considerations suggest the operation of at least two important variables: the reading difficulty of the written language and the comprehension ability of subjects.

Purpose

The purpose of the present study was to compare the use in cloze tests of standard or uniform length blanks with blanks of the same length as the word deleted. Comparisons were made using passages varying in difficulty and subjects differing in reading ability. The null hypotheses tested were

There is no difference between the mean score for standard-length blanks and the mean score for exact-length blanks at different levels of passage difficulty and for different reading ability levels.

There are no interactions between length of blank, difficulty levels, and reading ability levels.

The 5 percent level of significance was required for the rejection of the hypotheses.

This study was part of a larger study conducted in New Guinea. The New Guinea setting provided an opportunity to test cloze procedure as a measuring instrument with subjects learning English as a foreign language. Further, it provided an opportunity to test cloze procedure against a multilinguistic background of great diversity and perplexity, for it has been estimated that over five hundred distinct languages are spoken in New Guinea.

Test measures

Cloze tests were constructed over passages drawn from three children's readers. The three readers were judged difficult, neither difficult nor easy, and easy reading for children in the upper primary levels of territory schools. There was a lead-in of ten words to each passage, and thereafter every eighth word was systematically deleted through the passage. In half the cloze tests missing words were indicated by underlined blanks ten spaces in length (standard-length blanks); in the other half, blanks were the same length as the word deleted (exact-length blanks). Since the exact-length versions of the cloze tests did not allow sufficient space for subjects to print their answers, answer spaces were provided alongside the line in which the deletion appeared. The same procedure was adopted for the standard-length versions so that only length of blank varied.

	ANSWERS
Standard-length version	
When the tiger is too old to hunt for food ———— the jungle.	_____
Exact-length version	
When the tiger is too old to hunt for food —— the jungle.	_____

To control for initial reading ability, subjects were first ranked according to their scores on Watts' Test (*13*). This test was shown by McLeod (*7*) to correlate highly with cloze tests.

Subjects

All testing was carried out in one primary school. The predominant local language in the village where the school was situated was Pidgin, while in the school the medium of instruction was English. All pupils in the top three standards (N = 110) constituted the sample.

Experimental design

An experimental design that allows the effect of length of blank to be tested at different levels of passage difficulty and for different levels of reading ability is three-dimensional analysis of variance. The advantage of matching subjects on a control variable (the Watts' Test) is that an important source of error is reduced, thereby increasing the precision of the experiment.

The design called for two testing sessions. In the first, the Watts' Test was administered to each standard. On the basis of Watts' scores, an order of merit was made for the 110 subjects. High, average, and low reading ability groups were formed by dividing pupils into top quarter, middle half, and bottom quarter, respectively. Within each ability group subjects were randomly allotted to standard- or exact-length versions of cloze tests at one of the three levels of passage difficulty, reducing N to 96. To satisfy the condition of proportionality from row to row, high and low ability treatment cells each contained four subjects with eight subjects in each average ability treatment cell. Three days later the criterion cloze tests (standard- and exact-length) were administered under untimed conditions.

To minimize what Lindquist (*6*) calls type G (or group) errors, "treatments" were administered at the same time in class groups. Each treatment group was made up of approximately proportional numbers of pupils from each standard, and order of class testing was randomized.

A further comparison between standard- and exact-length blanks was made by correlating scores on each of these forms of cloze tests with scores on the Watts' Test for each level of difficulty. This, in effect, gave an estimate of the concurrent validity of cloze tests as measures of general reading comprehension.

Results

The kev assumptions underlying analysis of variance are homogeneity of variance and normality of distribution. The former was tested for the main comparison groups (length of blank and passage difficulties) using F test for differences between variances of independent samples and Hartley's F_{max} test (*5*), respectively; the latter was tested by inspection. There was no evidence to suggest either assumption was unreasonable.

Lindquist's procedure (*6*) for testing main and simple effects was followed. The summary of the analysis of variance is presented in Table 1. Means, standard deviations, and the number of subjects on which these were based are shown in Table 2.

Inspection of Table 1 shows that no interaction term was significant. Nor was there a significant difference between the two versions of cloze tests. Thus, there was no basis for rejecting either Hypothesis 1 or Hypothesis 2.

The differences between passages was highly significant and was to be expected since this was the basis for selecting the passages. The purpose of dividing subjects into reading ability levels was to increase the

TABLE 1

THREE-DIMENSIONAL ANALYSIS OF VARIANCE OF CRITERION SCORES OF 96 SUBJECTS CLASSIFIED BY READING ABILITY LEVEL WITHIN PASSAGE DIFFICULTY LEVELS AND LENGTH OF BLANK IN CLOZE TESTS

Source of Variation	df	SS	MS	F	p
Blanks (A)	1	555.844	555.844	2.629	NS
Passages (B)	2	26855.146	13427.573	63.498	<.001
Levels (L)	2	23472.282	11736.141		
Interaction (A×B)	2	273.938	136.969	.492	NS
Interaction (A×L)	2	35.113	17.557	.061	NS
Interaction (B×L)	4	2865.062	716.266	2.498	NS
Interaction (A×B×L)	4	845.855	211.464	.738	NS
(Cells)	(17)	(54903 240)			
Within (W)	78	22361 750	286.689		
Total	95	77264 990			

TABLE 2

SAMPLE MEANS AND STANDARD DEVIATIONS FOR THREE PASSAGE DIFFICULTIES UNDER STANDARD AND EXACT-LENGTH BLANKS

Passage Statistics	Standard-Length				Exact-Length			
	A	B	C	Total	A	B	C	Total
Mean	58.19	40.13	15.44	37.92	63.38	40.63	24.19	42.73
Standard Deviation	24.99	26.15	12.86	28.25	17.17	31.87	17.72	28.28
N	16	16	16	48	16	16	16	48

precision of the experiment by matching subjects on a related variable. Hence, there was no concern with testing differences between levels.

The product moment correlation coefficients for each group of 16 subjects on the Watts' Test and the standard- and exact-length versions of cloze tests for each of the three passages appear in Table 3. All correlation coefficients were significant at the 5 percent level. A single estimate of the correlation for each type of blank and the Watts' Test was made using Fisher's z test. The mean z value for the three passages was calculated and transformed to the corresponding r. The last row of Table 3 shows this average coefficient of correlation.

TABLE 3

VALIDITY COEFFICIENTS AT THREE LEVELS OF DIFFICULTY

Difficulty Levels	Watts and Standard Length	Watts and Exact Length
Passage A	.51*	.65
Passage B	.92	.73
Passage C	.75	.83
M_r	.61	.75

* A correlation coefficient of 0.426 is required for significance at the 0.05 level with 14df.

Discussion and Conclusions

The principal finding in this study concerned differences between the mean score for standard-length blanks and the mean score for exact-length blanks. Although the latter yielded slightly higher scores than the former for passages at three levels of difficulty, this difference was not significant. For the subjects and passages used in the present study it mattered little whether blanks were of a uniform length or the same length as the deleted word.

Significant correlations between the two versions of cloze tests and the Watts' Test showed that the use of exact-length blanks was no less valid a procedure for measuring general reading comprehension than the use of standard-length blanks.

The question of length of blank to use in cloze tests has practical as well as theoretical significance. For example, if a teacher wishes to construct a cloze test for use with his pupils or if a reading centre wishes to calibrate a number of books, the usual procedure is to type the passage deleting words systematically through it (for example, every fifth or eighth word) and indicate deletions by lines of uniform length. However, with the general availability of photocopying facilities it is simpler and more convenient to blank out words for deletion, provide a space for recording answers at the right-hand side of the page, and run off multiple copies. This process necessitates having blanks of the same length as the word to be deleted.

The advantage of this procedure is that it allows such factors as size of print, illustrative material, and page layout to be incorporated into, not excluded from, the cloze estimate of readability. If the findings of this study are confirmed by other studies, cloze procedure may prove an even more powerful technique for measuring readability.

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Research and Practice in Improving Listening

During the past 70 years educators have spent a great deal of time and effort on improving reading skills—not so with listening skills. In fact, not until after 1940 did researchers do much about investigating listening as an essential part of the language arts matrix—equally as important as reading, speaking, and writing. All the while it was estimated that pupils spend one-half to two-thirds of their school day in listening; and adults probably listen three times as much as they read.

In the 1950s tests of listening ability were devised, such as the Listening Comprehension Test (*3*) for high school students and the Reading Capacity Test (*6*) (a test based on listening) for elementary school children. (The revised edition is called the Listening-Reading Tests, 1969.) Also, during the 1950s Nichols and Stevens (*14*) wrote one of the first *books* devoted to listening. These two educators declared, "Incredible as it may seem when we think about it, this book, to our knowledge, is the first close analysis ever made of the oldest, the most used, and the most important element of interpersonal communication—listening." It was during this decade, too, that David Russell produced *Listening Aids though the Grades, One Hundred Ninety Listening Activities.*

Research studies reporting the relation of listening skills to reading skills

Perhaps the major contributions of the 1950s and the 1960s were the reports from research projects and doctoral dissertations. Various phases of listening were chosen for investigation: Don Brown investigated "Auding as the Primary Language Ability"; Ware Mardsen chose "A Study for the Value of Training in Listening Achievement in Reading"; Walter F. Stomer reported "An Investigation into Some of the Relations between Reading, Listening, and Intelligence"; and Edward Pratt wrote "The Experimental Evaluation of a Program for the Improvement of Listening."

In the Winter 1970 issue of the *Reading Research Quarterly,* Sam Duker's article, "Listening Bibliography," contained the following annotation: "Gives brief annotations of 1,332 references concerning listening." Thus it is readily seen that there is no lack of *interest* in improving listening skills or carrying on research related to listening and all of its complex facets.

From the research by Kelty (*10*), Lewis (*11*), Lubershane (*12*), and Hollingsworth (*9*), there has emerged a significant idea: when we improve certain skills in listening, those same skills improve in reading.

Kelty was interested in the effect that training in listening for certain purposes had upon the ability of fourth graders to read for those same purposes. The purposes he selected were 1) deciding upon the main idea of a selection, 2) deciding upon the supporting details given in a selection, and 3) drawing a conclusion. The experimental group was given 30 fifteen-minute lessons in listening for 30 days. The control group received no instruction in listening. Kelty concluded that practice in listening for certain purposes favorably affects the ability of fourth grade pupils to read for those same purposes.

Lewis carried on a study with elementary grade pupils in order to determine the effect of training in listening to get the general significance of a passage, to note details presented on a topic by a passage, and to predict the outcomes from a passage. Three hundred fifty-seven intermediate pupils in 12 classrooms were used in a program of training in listening, consisting of 30 lessons of approximately 15 minutes each. One lesson was given each day for six weeks, the teachers reading the selections to the pupils. Each lesson included a listening exercise for each of the three purposes stated above. Lewis concluded that training in listening for the three purposes seemed to have a significant effect upon the ability of intermediate grade pupils to read for those same purposes.

Lubershane chose to study this problem: Will instruction in listening improve reading ability? His study included fifth graders, 35 pupils in the experimental group and 37 in the control. No listening exercises were given the control group. The Metropolitan Reading Test was administered before and after training. The experimental group was given auditory training exercises designed to improve written responses to oral commands. He concluded with a statement that auditory training may prove of value in reading programs, although no statistical proof of the value of these exercises in improving reading ability was found. The generally greater growth in reading ability in the experimental group suggested strongly that the auditory exercises had a positive effect on reading growth.

In summarizing several research reports in which the effects of listening have a direct relation to progress in reading, Hollingsworth concluded, "Many of these research reports show that through improvement of listening abilities reading can be improved. Listening does have a positive effect on reading achievement."

Would it not seem an appropriate procedure, then, to teach skills first through listening and then by reading? Have we been remiss in not using a listening-reading method in the improvement of reading instruction?

Orr, et al (*15*), proposes that educators use compressed speech (see last section of this paper) as a research tool to explain the knowledge of the relationship of listening and reading.

> The study of interaction between reading and listening, as a communication phenomenon, can now begin to be studied through the use of compressed speech as a research tool. For example, let's suppose that we take a group of average students and give them intensive training in rapid reading: Does it do anything to their listening comprehension? Before we couldn't ask that question; now we can. Or turn the problem around, take a group of students, give them intensive training in listening comprehension, as a function of listening rate: Does that change the characteristics of their reading behaviour? Again, this is a question we couldn't ask before and I think it's a fascinating question. Such studies may enable us to attack this whole problem of central processing and the similarity, if not the identity, of the listening comprehension process and the reading comprehension process.

Difficulty of the listening skills

Perhaps educators are just now beginning to recognize the difficulty of the listening act. Friedman says,

> If we accept that both the stimulus parameters and the task requirements determine some of the listening behaviors, then we may ask what is listening proficiency? Listening behaviors consist of rejecting as well as processing certain portions of the speech. I'll venture a private definition and say that selecting appropriate portions and/or aspects of the stimulus is one activity that is necessary. You must attend to the right things in that stimulus. It is necessary for the listener to filter out the portions that he doesn't want and select the ones that he does. Then he must select appropriate listening behaviors for the task requirements. He has, in some way, to connect the internal work that he is going to do with the stimulus, to the parts of the stimulus that he has accepted. Then of course, what he does, he must do with accuracy and with required speed (*4*:131).

Others have tried to define the

> . . . tasks that confront the listener, who is essentially reading-by-listening. Possibly we can compare reading-by-listening to obtaining information from the print-page-display. The person who processes the print-page-display . . . has considerable control over the amount of information that he can retrieve . . . . He can vary the rate at which he processes the display. He can take advantage of the redundancy in the display. He can look ahead . . . his reading rate is continuously varying in accordance with the momentary demands placed upon him as he processes . . . it is a spatial display. On the other hand, the person who reads-by-listening is not able to do this. The listener has direct access only to the information specified by the acoustical energy that is present at a given instant. He does, of course, have some access to remembered listening experiences . . . [but] the listener cannot vary the rate at which he processes . . . he cannot listen ahead and he cannot listen back . . . (*4*:133).

Again Orr, in explaining the psychological nature of listening, commented that

> What the individual is doing when he is comprehending a message, whether it is a listening message or a reading message, is associating the concepts that are coming in through the sensors to a pre-existent cognitive structure . . . . There are obvious differences in reading and listening, but I would like to propose that these are similar processes in respect to cognitive integration . . . . The activity we are talking about is the mental effort associated with attempting to place incoming concepts in the context of one's existing cognitive structure (*4*:138).

Sterritt, Martin, and Rudnick (*17*) contrast the difficulty of listening and hearing:

> Vision and hearing differ from each other in a number of ways, one of which is that vision gives us a great deal of information about precisely how things are laid out from left to right, up and down, etc.—how things are arranged in *space*. Hearing, on the other hand, gives us only a crude picture of spatial arrangements, but is organized instead as a sequence of events strung out in *time*. Therefore, when we talk about auditory-visual integration, we are usually also referring to *temporal-spatial* integration—the ability to integrate information that is arranged as a string of events in *time* with information given as an arrangement in *space*.

Lundsteen (*13*) says,

> When the mode of reception of the verbal data with which to think critically is purely auditory, there are more difficulties than when reception is

by reading. Reading imposes a helpful constraint of a relatively permanent medium.

Basic and cognitive listening skills

If we assume that the listener has no auditory defect, for discussion purposes, we can consider oral input as being one of two types: fundamentally basic or characteristically cognitive. The basic, or primary, requirements of auditory acquisition are discriminating, focusing (or attendent), tracking, remembering, and sequencing. These skills are basic to the operation of the higher processes of cognitive listening skills.

Discriminating. Teachers are perhaps more familiar with the basic listening skill of discriminating than with the others. They give practice in auditory discrimination in relation to the teaching of reading. Every teacher needs to screen each individual in his class for auditory discrimination skills at the beginning of each school year. Otherwise, how will he know who can profit most from help in phonetic analysis as a word attack skill? Perhaps the teacher uses an auditory discrimination test, such as the subtest in the Gates-McKillop Diagnostic Reading Test (*8*) or the Wepman Auditory Discrimination Test (*18*). A test which the teacher can use at the secondary level can be found in a new listening skills program, *The Listening Progress Laboratory* (*2*). These auditory discrimination tests, plus the tests in the *Listening Skills Program (1)* (for elementary pupils), will help the teacher to identify those pupils who need practice in this basic skill.

Focusing or attending. The efficient listener has the ability to focus or attend. He focuses—zeroes in on the speaker's ideas—and attends only to the speaker. He is skillful in "tuning in" the spoken word and "tuning out" extraneous sounds.

Tracking. Can the listener effectively receive a message when there are competing messages? While some may be able to discriminate and "tune out" environmental noises, they may not be able to hear two voiced messages and successfully track or follow one of them. How skillful is a listener using a telephone when he must listen to the voice at the other end of the line while someone is speaking beside him? Tracking, used in this sense, is a difficult basic skill.

Remembering. Many educators consider listening the most difficult of all the language arts. As has been noted, one of the reasons for this difficulty is the demand for interpreting temporal order. Output by a speaker and the resultant input by the listener is time oriented, the success of the listener depending not only on discriminating, focusing, and tracking

but also on auditory memory and sequencing. Remembering and sequencing are more difficult in listening than in reading, for there are no visual props, no replay, no rereading, no comparisons. In reporting on the results of the PACE Project in Alameda County, Witkin (*19*) writes, "Words and sentences are made up of a series of sounds presented in a temporal order, and this order is a major dimension of language."

In contrast to the basic skills of listening, there are cognitive listening skills. Some classroom teachers give students help in the cognitive listening skills by structuring many normal classroom listening situations. One opportunity for such an activity is when the teacher reads stories and poems to the class. By setting a purpose for the pupils, she can help them improve their listening for directions, for the main idea, for details, for cause and effect, for fact and opinion, for any of the enjoyable purposes of creative listening. One of the most important of all cognitive listening skills is that of critical listening. In the *New England Reading Association Journal,* Devine (*5*) summarized the results of several studies in critical listening:

> Certain implications may be drawn from the studies described here. First, it seems clear that critical listening can be taught to pupils in grades five through nine. (Huck and others have proven that critical thinking can be taught at all levels, including primary.) Second, the data indicate that it can be taught with equal effectiveness to pupils who score low on standardized intelligence tests and to those who score high. Finally, teachers working with the materials note that many of the skills in critical listening are so closely related to skills in critical reading that they can be taught together, thus affecting some economy in teaching time and effort.

Practice exercises, made either by the teacher or commercially procured, can also be used to increase proficiency in the various basic and cognitive listening skills. If recordings for practice are purchased, the suggestions in the teachers' guide usually furnish many additional ideas for extended activities in listening throughout the day. Likewise, language texts and curriculum guides offer invaluable suggestions to the teacher.

Compressed speech

During the past few years, researchers have given attention to compressed speech, sometimes known as "speed speech." Compressed speech is speech in which the recording of words per minute is increased without change of pitch or tone of the speaking voice. In other words, distortion free speech can now be offered the listener at increased rates of from ten to fifty percent.

Since one of the crucial problems facing educators today is to find better ways of communicating information rapidly and reliably, speeded speech training is desirable for all students. The "knowledge explosion" has forced the use of new and better ways of saving valuable time while at the same time not giving up any proficiencies in comprehension and retention.

Implications for practical classroom use of compressed, or speeded speech, have been suggested by Orr, Friedman, and Williams (*15*). These include 1) the improvement of normal speed presentations, 2) encouragement of long-range retention of material because of the close attention demanded while listening to compressed speech, and 3) an excellent means of reviewing previously presented material. Another very practical application of the use of speeded speech is its use in building readiness or giving an overview to material to be listened to and studied in greater detail at a later time. Such an activity might be likened to the s in the SQ3R formula, which suggests that in reading the first step in a good study procedure is to survey or overview the material. With these psychological and practical implications, opportunities to practice and master the skill of listening effectively to speeded speech is long overdue in the classroom.

The idea of compressed speech is now new. In the 40s educators, psychologists, and researchers began serious consideration of the desirability and the practicality of training listeners to receive oral messages when speech was produced faster than 130 to 170 words per minute (the approximate range of normal speaking rates). At that time, the problem was to produce speech which was faster than 170 words per minute without distortion. In the 50s, ways were discovered to accomplish this goal.

Invented by Mark Springer, the MARK II, manufactured by Automation GmbH in Heidelberg, West Germany, is a speech rate-deviation device distributed in the United States by Infotronic Systems. Speech may be compressed or expanded by first recording the speaker on a normal tape recorder operating at 15 inches/second. The tape is then threaded through the MARK II, and the MARK II's output is connected to both the input of any ordinary tape recorder and an amplifier-speaker combination for listening. (This may be a part of the tape recorder being used.) A simple turn of a knob and the original tape is running through the MARK II. The turn of another knob calibrated in "percent of original time" changes the tape's linear speed over a wide range and with it the speed of reproduction of the recording.

There are several other ways of compressing speech. One means is accomplished by the intricate programing of a computer. At this time, several other methods are still restricted to laboratory efforts.

What is the ultimate aim of speech compression? It is conceded by most experts in the field that it would be desirable to produce a speech compression device in a price class which would make it possible to equip entire classrooms, as well as study carrels, with individual units for each student. This way will permit the student to set his own pace and to learn at his maximum speed capability, yet slow down for sections which are difficult and speed up for material which is easy.

Faulke (*7*) has said,

> Ideally, we would like to think of a system in which the listener had direct control: that is, in which he could adjust presentation rate in accordance with his continuously changing demands. Unfortunately, at the present time, this is not really practical because such compression equipment would be too expensive, but this may not ultimately be the case.

In 1968 at the National Reading Conference, a symposium was held on the topic "Rate Controlled Speech and Listening Comprehension." It was there that Cramer (*4*) spoke of hearing some compressed samples from Grant Fairbank's device at the University of Illinois and of his reaction to it:

> I was particularly impressed with the rapidity with which I could come to understand speech at rapid rates. When I first heard a passage at two and a half times the normal rate, it was like viewing a passage on a reading machine that was going a little faster than I could read: you can see things going by, sort of, and you can get a little bit here and a little bit there, but you really can't make sense of it. But all of a sudden, by the time I had listened to compressed speech only two or three times, it was perfectly clear; I could understand everything. It didn't take much time to learn to understand the distortions that take place when you drop out bits of speech.

And, now, we come to reports on two training programs. Parker (*16*) has reported on an experiment using 429 junior college students who were divided into three levels of aptitudes: high, average, and low.

> Six groups heard listening selections that differ from groups to groups with respect to rate of compression and/or mode of presentation. Two groups heard the selections at normal speaking rate, two at one-third compression, and two at one-half compression. For each speaking rate, there were two modes of presentation—an aural-only mode and an audio-ocular mode that included simultaneous presentation of the printed page to match the aural messages.
>
> The simultaneous presentation of the printed page resulted in significantly better comprehension for all aptitude levels hearing compressed speech but was not significantly superior for the high and low aptitude levels hearing the selections at the normal speaking rate. There was no significant decline in comprehension for each of the aptitude levels when

normal speech was compressed one-third. One-third compression was significantly better than one-half compression for each aptitude level utilizing the aural-only mode, but there was no significant difference in comprehension scores at the same degrees of compression when the audio-ocular mode was utilized. One exception was the low aptitude group.

A second report (*15*) deals with 32 male college students.

The purpose of the study was to determine whether training with the use of distortion-free, time-compressed speech could increase human capacity to receive spoken language without significant loss of comprehension. Male college students . . . received systematic practice in listening to progressively increased rates of speech from 325 to 475 words per minute. Results indicated that increases up to double normal rate produced no significant loss in comprehension for experimental students; statistically significant differences between the performance of the experimental and control groups at higher rates indicated comprehension of rapid speech to be a trainable phenomenon. The data also suggested that listening to speeded speech may have a beneficial effect on reading skill.

Summary

Thus, this presentation has made the full swing from the relation of listening to reading, an explanation of the difficulty of listening, suggestions of both basic and cognitive listening skills, consideration of compressed speech, and finally back to the beneficial effects of special training for improved listening and to the gains to be expected on reading from listening training.

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Research on Language and Reading in Pakeha and Polynesian Groups

At the Second IRA World Congress, Constance McCullough (*5*) said, "You may think too much is being made of the dialect and language problem in reading. . . . When one looks at a great river of fresh water pouring irrevocably into the salt ocean while thousands of acres of land remain desert and when one sees in the colour of the river the precious soil draining from a starving land, the magnitude of the waste appalls. There is another kind of waste, another kind of thirst and starvation in all societies. With intelligence it can be prevented." New Zealand educators have accepted a responsibility for avoiding waste and are seeking ways to maximise the effectiveness of their efforts.

Some 20 years ago Sylvia Ashton-Warner taught in a Maori country school. She wrote eloquently of the Maori children and bitterly, perhaps unfairly, of the education system. Although the rural problem she described still exists, there has been an increasing drift of Maoris from rural areas to the cities since that time; and research on Maori education gathered great impetus in the 1960s. The research I have to report was funded by the Maori Education Foundation established at that time. In the same period a somewhat revolutionary changeover in beginning reading was made by the department of education to natural language texts, a new kind of vocabulary control, many little books in place of a big primer, and stories about New Zealand children with brown or white skins.

Evaluative studies of children's reading behaviour on these books have been reported (*2, 3, 4*). The present report compares the skills of four different language groups during their first two years at school. The first language group was chosen for their optimum experience with English. Their fathers were professional men who probably provided homes where a good model of the English language was spoken. All the remaining children in the ten urban schools visited, whose parental language was English, were listed as the Average English group. These two groups would be comparable to similar groups of American or British children

except 1) that the spectrum of socioeconomic differences would be shortened at either end and 2) they began school on their fifth birthdays, never before five years and rarely afterwards. When these two groups are combined, they are called Pakeha children, an accepted Maori word for New Zealand whites.

Contrasted with the Pakeha groups were two groups of Polynesian children, Maoris and Samoans. Centuries ago the Maori came from the Pacific Islands, but he has resided in New Zealand for more than a thousand years, long enough to adapt his living, his culture, and his legends to the adopted country. The Maori children lived in Auckland, although their parents may have moved recently from rural districts. The children's understanding of the Maori language was tested, and they knew a few items of Maori vocabulary but had no command of simple instructions, questions, or answers. This was new information which was disquieting.

The second Polynesian group was chosen to represent the immigrant populations of Pacific Islanders who live in New Zealand. Auckland is said to now have the largest Polynesian population of any Pacific centre. The immigrants come from Western Samoa, the Tokelau Islands, Nuie, and the Cook Islands, with a few from Tonga and Fiji. In 1966 the biggest groups were the Samoans (11,842), the Cook Islanders (8,663), and the Nuieans (2,846). Of all the 30,000 Polynesians now in New Zealand 64 percent live in Auckland and 10 percent in South Auckland. A challenge to find improved procedures for their instruction is being offered to those of us who work in Auckland. The Samoans were selected for study. Of all the island groups they may well have the highest motivation to succeed, and they are said to have cohesive cultural support for members of their community. They apparently require their children to speak Samoan at home because tests showed 75 percent with fluent understanding of the language. At the same time Samoan parents both expect their children to do well at school and try to help their children make the best use of education.

Although the study was limited to urban children, every effort was made to obtain a sampling of schools that was representative of all cultural and socioeconomic differences. The ten schools were widely spread throughout the urban area; the percentage of non-European populations in the research schools ranged from 10 percent to 90 percent.

Language and instruction

In countries where children of several language groups enter a school system, the instruction is usually given in one language by an arbitrary

or political decision. There is something analogous to this condition in Auckland where several Pacific languages are spoken by immigrant populations, and English is the language of instruction.

In countries where there are two conflicting languages, an indigenous language of a minority or weak group and a dominating language from a minority group, the easy solution is to let the weaker language fade and to encourage the use of the language of instruction. Historically this has been a feature of New Zealand's education policy (*1*). In the long term this practice has produced Maori parents who provide their children with few opportunities to converse in Maori. Presumably these parents use a dialect of English which is restricted, less flexible, and less expressive than the standard dialect (although we await descriptions of sociolinguistic studies to confirm this). This dialect would be the version of English their children bring to school.

There is a quite different cultural argument abroad in New Zealand today which says that the young Maori needs to regain a pride in his culture and history. Language has been an integral part of Maori ceremony, social institutions, and life, and there many who feel that, without restoration of the Maori language, there will not be a satisfactory restoration of Maori identity. The schools are under some pressure to introduce instruction in Maori, even at the level of school entry. From another direction a vigorously developing preschool movement is pressing for clearer leads from educators as to which language it should be fostering.

It is to be hoped that careful research can make a contribution to this decision making. It is important to know what the language skills of New Zealand school entrants are. How do these children progress with learning to read? In what respects does the adopted reading program penalise the Polynesian children? What supplementary or compensatory procedures are indicated? Are different educational provisions or programs required?

The research report

The research was planned to describe differences and age trends in the language skills and reading progress of children between five and seven years.

Samples. Two studies were run parallel with two independent samples, A and B, each consisting of 160 children from ten urban primary schools. All eligible children in the language, age, and sex categories were listed and allocated by random numbers to the research samples until the

required numbers were obtained. The youngest group was aged 5:0–5:3, and the remainder were grouped 5:4–5:9, 5:10–6:3, 6:4–6:9, 6:10–7:3. There were four girls and four boys in each language-age group. This arrangement gave 32 children per age group, 40 children per language group, and 160 children per sample.

Procedure. A team of eight assistants tested all children in September–October 1968, after six training sessions on the precise procedures for administration of tests. To reduce fatigue, the battery of two tests was taken in two sessions. The testers had freedom to vary only the order of presentation.

Data analysis. Scores for each test were T-scaled using all the scores of both samples. These scores were combined and rescaled for the major variables of Oral Language, Visual Perception of Print, Auditory Perception, and Reading. Two-way analyses were made of variance for language groups × age groups.

Test battery. Many of the tests were research instruments not readily available. They are listed below with reliability coefficients and with some correlations of reading progress obtained in an earlier research (Clay, 1966).

Test	*Reliability*	*Correlation with reading progress*
1. ORAL LANGUAGE IN ENGLISH		
Articulation	0.98	0.37
Vocabulary (PPVT)	0.79	0.51
Sentence Repetition	0.89	0.42
Inflections	0.77	0.34
2. AUDITORY MEMORY		
Digit Span	0.82	0.49
Span for random words	—	—
3. VISUAL PERCEPTION OF PRINT		
Conventions of Written Language	0.87	0.79
Identifying Letters	0.97	0.83
4. READING		
Word test	0.90	0.93
Schonell R.1 Test	0.81	
Daniels and Diack Reading Test	—	

Results. 1. The testing in Polynesian languages had shown that the urban Maori children were monolingual in English and 75 percent of

the Samoan children were bilingual. The other 25 percent were similar to the Maori children in their slight control over Samoan.

2. The major variable Oral Language in English showed all Pakeha and Polynesian groups making large gains in the five- to seven-year period (Figure 1). The position of the Maori and Samoan groups ap-

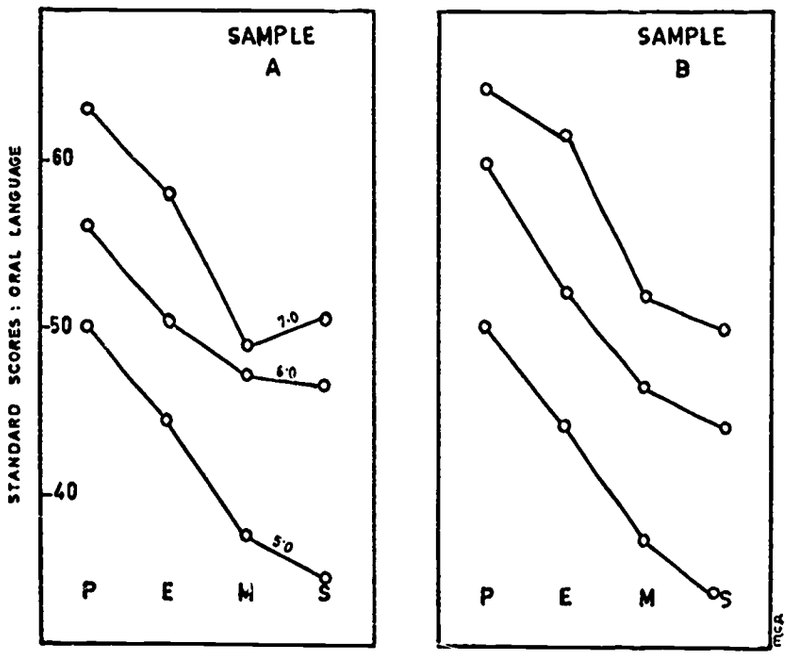

FIGURE 1. Comparison of language groups on the combined scores for four tests of oral language at ages 5:0, 6:0, and 7:0.

peared to be neither as good nor as bad as had been suggested. Despite their lower scores in English at school entry the Polynesian children made very rapid gains so that at seven years they were at or above the level of the five-year-old Pakeha children from average homes. However, it would be desirable to turn this parallel progress into an accelerated rate of progress, if this could be done.

3. The Maori child's control of English was better than that of the Samoan child.

4. Two tests of the visual perception of print were used. On this variable the Maori and Samoan children were equal at 5:0, but the Maori had not made as much progress at 6:0 as the Samoan child and this inferiority persisted unchanged through to 7:0 (Figure 2). The order of

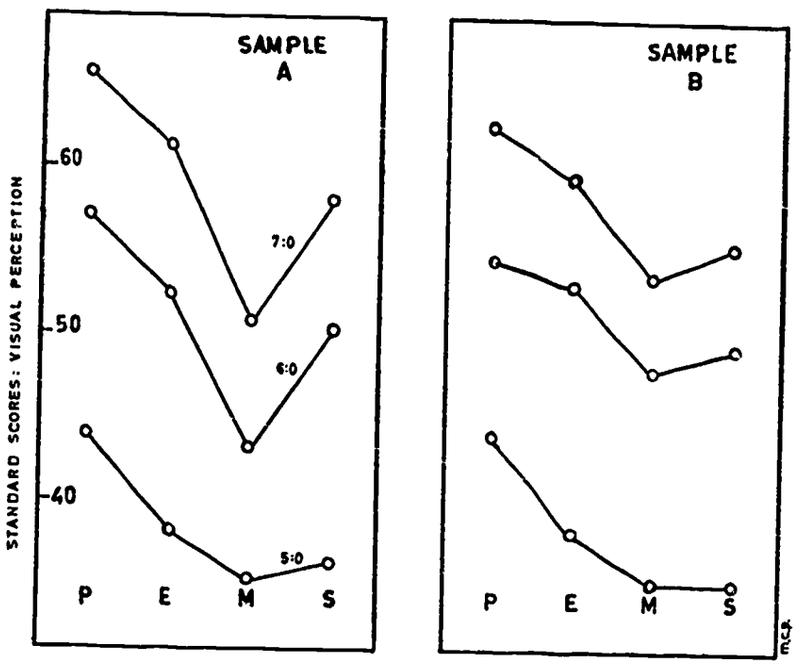

FIGURE 2. Comparison of language groups on the combined scores for two tests of visual perception of print at ages 5:0, 6:0, and 7:0.

the language groups was Professional, Average English, Samoan, and Maori.

5. Three tests of reading progress showed the Samoan group more or less level with the Average English group at 6:0 and ahead of the Maori children. By 7:0 the Samoan children had maintained their lead over the Maoris, but they had lost ground somewhat in relation to the Average English group (Figure 3). This finding was thought to be related to the increased complexity of the English of their reading books.

6. Results from the auditory memory tests presented no clear findings of differences between groups. All made significant increases in scores with age, and all seemed to be affected by some limitation on span throughout this period.

The visual perception of print results and the monolingual status of the Maoris were both surprising results. While language deficits had been blamed for slow school progress, no one had suggested inadequacies in visual search or analysis. Yet these results pointed clearly to a strong advantage for the Samoan child in his early school progress in the visual perception of print and in reading. Despite their advantage in oral

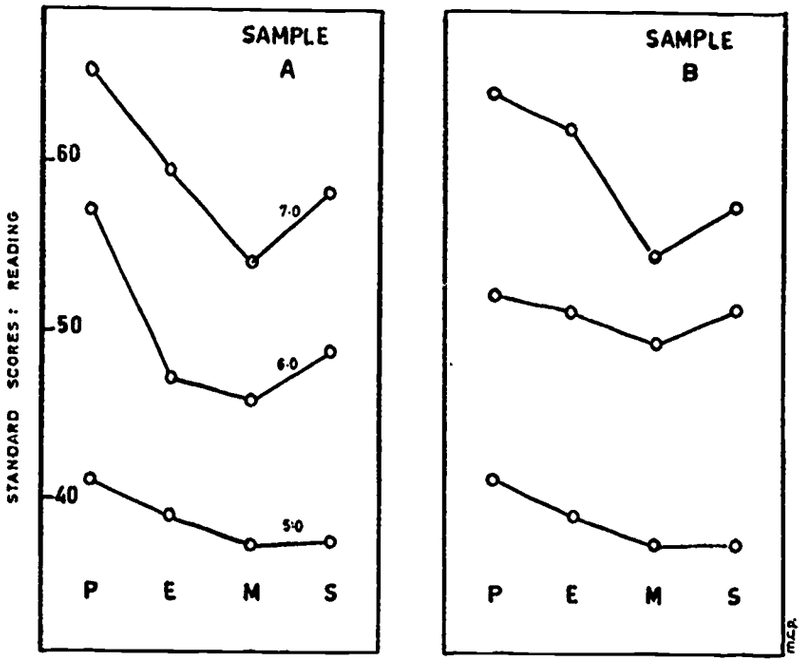

FIGURE 3. Comparison of language groups on the combined scores for three tests of reading at ages 5:0, 6:0, and 7:0.

language, the Maori children did not make such progress. One can only speculate on the reasons for the differences, but the aural tradition in Maori culture may be one contributing factor.

The visual perception of print variable should not be exaggerated. Previous research had shown that this is a first-year learning task for New Zealand Pakeha children and the Maori school entrant seems to be ill-prepared for such learning. But better preparation in his preschool years could not be expected to provide a panacea for his learning difficulties. Language deficits among Polynesian children could be expected to affect scholastic progress more and more as the linguistic structures of educational language become more complex.

In summary, the two important findings of the study are the large and significant changes in all major variables found in all language groups over this age period and the fact that early reading progress did not match with oral language skills but with progress in the visual perception of print. In the first year of school for five-year-old entrants taught by the language-experience method currently used in New Zealand schools

using the particular reading materials in vogue, early reading progress depended very much on learning to identify the concepts and spatial or directional features of printed texts in general and of letters in particular. A cultural disadvantage was detected which was not related to language deficit.

Discussion

Some perspective can be gained from these results of what can happen when a policy of banning the use of the home language in school is applied over a long period of time. There is a sad lesson to be learned from 60 years of this policy for the Maori people. It has done little more than perpetuate a poor level of English in place of the Maori language. It has not given the Maori an educational advantage over his bilingual Samoan friends. *Better solutions are required.* Those who believe that the Maori language should be revived now have to discover how to reinstate a language that very few people speak.

Further study of the home language contexts of both the Polynesian groups will contribute to our knowledge of the conditions facilitating the Samoan bilingual adjustment and of the urban Maoris' subcultural dialect problem. We must study the quantity and type of linguistic forms used in parent-child conversation.

When multilanguage groups enter an educational system, appropriate language planning for compensatory instruction should stem from assessments of all the language skills of the school entrants. It is not sufficient to focus on the target language alone as New Zealanders have done in the past.

We uncovered a group of children who were very slow to learn the directional, spatial, and visual aspects of printed language. This problem presents a challenge to provide better instruction for this group in order to undercut their failure. With special attention to this early school learning we may convert what was overlooked into an important supplementary activity.

If you should think that the Maori children scored poorly in reading progress because schools had failed to adopt an Ashton-Warner approach, I would have to disagree. While no school system could hope to have all its teachers with such fine sensitivity, there is nothing in the present preparation for reading in Auckland urban schools that would prevent a complete Ashton-Warner approach—except that we have gone further, so that the "stream of autobiographical writing" in the child's vernacular begins when the child enters school and organic reading begins with

complete utterances rather than sight words. Flexible grouping of children, a language-experience approach, texts of natural dialogue preserving cadence, and creative writing activities are accepted facets of reading instruction.

It is not a swing to a "better method" that New Zealand schools need. The task of research is to make it clearer to teachers where they are to take the personal language that "erupts like a volcano" in the young child. Descriptions of those structural features which are present and emergent in the language of particular groups are required. We have in the past swung pendulum-like from old methods and materials to new ones looking for perfection which does not exist. In the hands of an intelligent, sensitive, and observant teacher *any* method works.

But each method and each set of materials tend to emphasize some aspects of the reading process and undervalue others. For any program it is necessary to study its effects on children of different kinds. It is important to know which specific groups will need supplementary instruction, or closer observation, or compensatory materials to foster, add, or evaluate particular skills.

Many good trends seem to reach a self-defeating stage. When my country introduced a new reading series, it began with 12 little books so that no child would feel he was being held on the same primer for several months. Publishers quickly produced many supplementary series which were, on the whole, well written, contained a carefully controlled vocabulary, and presented good illustrations. Children could be side-shunted onto parallel series. But it was undoubtedly commercial proliferation. How much better if we, on the basis of good research findings, could identify the needs of particular subgroups at different stages of the learning process and choose a series of supplementary readers because it featured the particular problem of that group. At present a supplementary is chosen because the child "needs more time on that level," or "needs more practice," or "needs to consolidate his skills." When research can be more specific about the reading process, teachers can be more enlightened about their choices of supplementary activities. Such bridge-building at points of difficulty was foreshadowed in Sylvia Ashton-Warner's concept of Maori Transitional Readers to precede the basic series. But it goes beyond that, and is, I believe, program-specific. From the child's eye view the boundaries between the New Zealand prereading program and reading program are becoming blurred as caption book reading shades into the basic series. It is possible for a child to lose the feeling of "Which book am I up to?" and substitute sheer enjoyment of many interesting stories. But there is room for more explicit purpose

in selecting parallel materials to develop the particular skills that have prevented rapid progress to the next higher level.

Over and above all there remains a cross-cultural dilemma of world relevance, how to keep alive a home language, and also ensure a high level of functioning in the language of instruction.

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Research on Children's Written Language in Social Studies

The major objectives of the Taba Curriculum in Social Studies (5) are the development of a number of specific thinking skills; the acquisition, use, and understanding of important elements of knowledge; and the formation of particular attitudes and values. This report describes the development of techniques for evaluating children's written responses against aspects of the first two of these objectives. A story approximately 400 words long was read to sixth grade children as they followed on typescript copies in front of them. At the end of the reading they were asked to write a sentence which told what the story was about. Two kinds of content analysis techniques were developed: one for the use of project staff members for research purposes and another for the use of teachers to gather data for classroom evaluation purposes.

In the development of the content analysis techniques for this exercise a number of research problems needed to be solved. The first was to find suitable reading materials—suitable, that is, in the sense of being typical of that which was used in the Taba curriculum, yet dealing with topics which were sufficiently unfamiliar to the children under study for none of them to be at an advantage over another through having read or heard about the particular kind of people in the story. Each story also had to lend itself to the development of generalizations which could then be analyzed for the thinking skills used in composing them.

Another problem lay in the development of criteria which were consistent with the objectives of the curriculum and which could be applied objectively and reliably by markers in giving scores to each response.

Selection of stories

Two stories were selected from a single source (2). They had intrinsic interest, at least for the three sixth grade groups used in a pilot study. When asked about the stories, the groups reported that the stories had

things happening to people and included "all sorts of different ideas you could get out of them." The stories were altered slightly from the original form through reducing the number of abstract terms to a minimum. The remaining material described aspects of human behaviour in basically concrete terms, and, hence, each story offered an opportunity for students to see relationships among the concrete items and, given a suitable stimulus question, to express their perceptions of these relationships in either concrete or abstract terms. Each story was, therefore, selected in the first place because it lent itself to the application of inductive questioning techniques and was then modified to ensure that summary sentences containing any abstract words would, for the most part, be expressions of a synthesis of relationships that had been seen in the story rather than a simple copying of words from it. Any reading difficulties that might have occurred were met by having two sixth-grade classes (both with mixed ability) listen to the stories as they followed along from written copies and then write summary sentences and discuss in class groups any difficulties they had in understanding the story and the questions asked. The results suggested that almost all of the students in the two classes understood the stories and the instructions to write a sentence that told what the story was about.

One of the two stories selected was used in a pretest exercise in the main project evaluation and the other in a post-test exercise.

Criteria for evaluating responses

The criteria to be used in evaluating the summary sentences came about in two ways. One member of the curriculum development project's evaluation team selected from 50 randomly drawn (from a total of 700) responses that which he considered to be the ten most and the ten least satisfactory ones. Each of these 20 was then analysed for the criteria that had apparently been used in their selection, and each of these criteria was then checked for its appropriateness to the objectives of the curriculum.

Two kinds of criteria developed from this process. One kind related to the content of the story and the other to the processing of the items in the story. The content criteria were as follows: *Accuracy*, which referred to the incidence of errors, unwarranted inferences, and imprecise (as distinct from clearly wrong) items and *Completeness* (or *Inclusiveness*) which was concerned with the extent to which all the important aspects of the story were covered. The process criteria were as follows: 1) Level of *Abstractness* or *Conciseness* of the words used, the most effective on

this criterion being those which had the greatest amount and depth of the story's meaning in them and which were expressed with sufficient precision to leave no doubt as to their meaning; 2) *Qualification* or *Subordination* which applied to a relevant explanation or qualification of a main clause or to a complementary relationship between two clauses; 3) *Tentativeness*, a criterion which was applied when there was evidence of an explicit recognition of the conditional nature of a generalization or inference based on the data in a particular story; and 4) *Comparison*, which applied to any relevant and accurate evaluative statement about a relationship between items in a story or between parts of the story and data outside of it. The effectiveness of the summary sentences according to each of these process criteria was determined by an estimate (worked out empirically and described below) of the relative amounts of mental processing which appeared to be involved in composing them.

Both the validity of these criteria and the reliability of the method of applying them to the balance of the summary sentences used in this study needed careful checking in view of the many subjective and potentially unstable elements which could have been involved in using the scheme. To this end, several research studies were reviewed (*1, 3, 4*) for theoretical and procedural support for what was done here.

The scoring scheme

As a step towards making the scheme more reliable and hence more useful for the project's research program, a scoring scheme was devised in which each word in a summary sentence was assigned points from one to four, and a detailed set of rules and procedures was developed for applying the scores. Each word in the 50 sentences was scored in such a way that the ordering of the sentences based on their total scores exactly matched the ranking achieved by applying both the content and process criteria in a general way.

Because the scheme had to this point been developed by one project member working largely on his own, it became necessary to test the reliability of the scoring scheme on two counts. The first was in terms of its consistency with the judgments of other project members as to how the sentences should be ranked, and the second had to do with the level of consistency trained markers reached in applying the scheme to a large number of sentences.

Fifty more summary sentences were then randomly drawn from the 700 available. These were scored and then ranked in stanine groups on the basis of their scores. Copies of these same sentences were then given

to three senior project staff members who were asked to sort the sentences into stanine groups using as their criteria the relevant objectives from the list used in the project. Each of these staff was sufficiently familiar with the underlying objectives of the curriculum to know what was wanted without any elaboration, and, consequently, each was making an independent assessment of the sentences before him. It was suggested that they sort the top and bottom groups first and then subdivide the middle group until the required subgroups had been formed. Each sentence was then ranked four times on a nine-point scale, first according to the scoring scheme and then according to the judgments of each of the three staff members. Any differences in rankings between the scoring scheme and each of the three rankings were then noted, and discussions were held with each individual to determine possible reasons for any discrepancies. There were relatively few of these so that the general validity of the scheme seemed to have been established.

There was room for improvement, however, since the discussions showed that the scoring scheme gave an unduly high score to some sentences simply because they had more words in them and, hence, more scoring opportunities than others. This deficiency in the scheme was corrected by dividing each total word score by the number of words in the sentence with the proviso that the minimum divisor be 14 for all sentences. This step proved to be necessary to avoid any overcompensation effect on small sentences. For example, a four-word sentence with two abstract nouns and an indefinite pronoun in it could have scored much higher relative to one with the same number of high scoring words but which were set among a number of nonscoring words that were repeated from the text. The figure of 14 was found to be the optimum one to ensure the maximum correlation with staff rankings on these particular sentences. But before satisfactory correlations were finally achieved, the three staff members had to be persuaded to penalize students who copied words from the text of the story. They finally agreed on the grounds that such a step would increase the objectivity of the scheme. For while there may have been some students who, after having engaged in high level thinking, chose to express the result in words and phrases copied from the text, there was no satisfactory way of distinguishing these from others who copied without giving the same level of thought to their decision.

The final correlations achieved between the scoring scheme stanines and those of the staff members were .83, .70, and .67 (average .73). These correlations were considered to be sufficiently high to warrant using the scoring scheme to evaluate an aspect of the effects of this curriculum on pupil performance. Before this was done, it was necessary to train markers

to use the scheme. Well-trained markers are indispensable in content analysis-type evaluation exercises.

Three graduate assistants had the general principles of the scheme explained to them, followed by a demonstration and practice on ten sentences. The various errors and misinterpretations that occurred in the initial practice were discussed, and then 50 randomly drawn sentences were used to test the reliability of the markers. Correlations between a project member's scores and each of the graduate assistants were all above .95, and so the balance of the scoring proceeded. Check marking by a staff member of one in 50 sentences showed that all three markers maintained a consistent standard. The entire training process took two half-day sessions.

Modifications of the scheme

The scoring scheme which is described in detail by Wallen, et al (5), provided an objective and valid means of either scoring, or scoring and ranking sixth grade responses. In spite of the relative ease with which it was taught to the three markers, it was still thought that teachers might be put off by its apparent complexity and might not use it to improve their teaching procedures. Two simplified forms of the scheme were developed for this reason. In the first of these, all words were scored either two or four (thus eliminating the one score), and then each sentence was checked against an alphabetical listing of all words in the story. All scores were deleted for any words in a sentence that were already in the story. Thus, the need to become familiar with the story in great detail was alleviated. This modified scheme was taught to a group of teachers during a two-day workshop. The teachers considered it to be straightforward enough for them to try in their own classrooms. These attempts proved to be quite satisfactory.

In another modified scheme, individual word scores were dispensed with altogether. Instead, the same procedure that was used in the initial stages of developing the scoring scheme was adapted for teacher use. It was tried out on a group of teachers attending a workshop who were each given 25 sentences of fourth graders to sort into what the teachers considered to be the three best and the three worst summary statements of a study of the Indians of California. When a tally was made of results, there was found to be considerable agreement. Teachers were then asked to analyse the criteria which had guided their choices. All of the criteria used for the project's scoring scheme, *except* tentativeness and comparisons, were suggested by the teachers. The theoretical importance

of these two criteria was discussed with them, and teachers were then given practice in applying all the criteria in a systematic way on 25 new sentences.

The first step recommended in this modified scheme was the application of two criteria, *completeness* and *abstractness*, in sorting out the three best and the three worst sentences. Each teacher's "best three" group was to have sentences which did not omit any of the important points in the study of the Indians and which at the same time had two or more accurate, precise, and original (i.e., not copied from the text) abstract words in them. In each teacher's "worst three" were sentences which were inaccurate or irrelevant, or which dealt with only one important aspect of the study, and which used concrete rather than abstract words to do so. The middle group responses were then inspected for evidence of Tentativeness and/or Comparisons in them, and if found, they were promoted to the best group.

The middle group was then subdivided by sorting out a group of five of the best and five of the worst sentences in that group. In this way the 25 sentences were divided into five groups on a 3, 5, 9, 5, 3, basis with slight variations possible if Tentative and/or Comparison elements, were found. Among 20 teachers there was sufficient agreement in the results for project personnel to feel that this scheme had merit. It was easy to apply, and those who learned to use it had their attention drawn to important objectives often overlooked in evaluation exercises. Certain precautions were thought be be necessary because of the possibility of more subjective aspects creeping into teachers' assessments based on these procedures than were likely with the others described in this paper. One suggestion was that major evaluation exercises be marked according to one of the two scoring schemes and other less important exercises, according to a nonscoring approach. In this way, a level of objectivity suitable for classroom evaluation exercises should be maintained.

There is no doubt that multiple-choice type tests will more often than not reach a higher level of reliability than is possible with any content analysis schemes, such as described here. But when it comes to a question of validity, the reverse is more likely to be true. If teachers can be persuaded to improve the levels of objectivity and consistency they apply to written and oral responses to open-ended questions, then one of the major objections to this form of evaluation can be met.

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CHALLENGES FOR THE FUTURE

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New Developments in Education

There are specialists these days who call themselves futurologists. They believe that they can put together trends of today and of the recent past in order to predict with some accuracy what the world will be like in years hence.

I cannot predict precisely what education will look like in any country during the next ten years. It might be entertaining, however, to take a look at what people engaged in educational speculation are talking about today and what this speculation might mean for changes in the future.

Some of the big issues are abundantly clear. Within each country, there is a clear demand for more education of a higher quality for all. Despite the phenomenal growth in educational opportunity during the past quarter century, despite the fact that many countries are spending more than a quarter of their national budgets on education, despite the fact that education is the largest single social expenditure in the budget of most governments, there is still widespread disenchantment with the way the educational enterprise goes about its business.

As we enter the second development decade, there is increasing concern that the educational expenditure of governments does not contribute as fully as it should to economic and social improvement. In many countries, dropout, repeater, and wastage rates are so high that it takes the equivalent of 15 or more years of classroom space and teacher effort for each student who finishes fifth or sixth grade. This statement means that in such systems, up to two-thirds of the expenditure in primary schooling is largely wasted.

In many systems, only a small fraction of teachers can be considered qualified by modern standards of teacher training and preparation. And that small fraction is usually found in urban areas, leaving the rural areas with teachers who can not get jobs in the cities. And yet many nations are staking their future on the development of rural areas, on the improvement of agricultural industries, on the 80 percent or more of their people who live in rural communities.

All countries are concerned that the curriculum may not be relevant to the needs of the students nor of the country. Curriculum changes slowly and still deals too much with memorization of the past when it should be dealing with the behaviors necessary to mold the future. Probably a third of the technical specialities workers use in today's industrialised countries did not exist 25 years ago. As many as one-half the technical specialties which will be developed in the early years of the next century do not exist today. Yet, we must teach students now who will be at the peaks of their careers in the first quarter of the next century. What should we teach these children in order to prepare them for work that does not yet exist?

Whatever we teach, we must not teach it poorly. Some psychologists claim that it should be possible to teach a twelve-year-old child in six months everything that most children learn in the previous six years. Others say we start too late, that children easily can learn to read at age twelve level before they are six years old. Others tell us that education should start at birth or even before the child is born.

These extreme positions may not be incompatible. There may be new teaching and learning methods and ways of organizing the teaching and learning environment so that many children can progress far beyond what is normally required at each educational level. Certainly, much of what happens to a child in the course of a school day hardly can be said to contribute to productive educational goals. And certainly much can be done to make learning more pleasant and satisfying so that children will be eager to progress rapidly.

Whatever we teach, however we teach it, and whatever the physical facilities may be, there is concern that opportunity is limited to children who are lucky enough or motivated enough to go to school when they are young. Lifelong education is the key word of the future. But lifelong education is, so far, simply a good idea wrapped in rhetoric. What kind of new educational center will we need to cater to the needs and interests of people of all ages? What kinds of new teaching and learning resources will these centers have? The variety of functions and approaches of such institutions will require total rethinking of the requirements for the future educational center and the new staff to run it.

Finally, most countries are worried about the way we plan our education and the way we manage what we plan. Some have said that most industries would go bankrupt if they were run as education systems are run. Many educational planning offices are low-level statistical units, keeping records that should be kept by clerks. Planning and building models for future systems and developing sophisticated, yet feasible, ap-

proaches are not easy tasks. Educational management must also be evaluated. Certainly, dynamism is needed in educational management.

All of these issues are on the mind of educators. Innovation and change are bywords of the day. We are not without ideas as to things that need changing in education; now we must develop innovative and feasible new models of education and face the tough business of introducing new ideas in the school systems.

Let us explore some contemporary bright ideas and meditate together as to how these will affect education in the future.

For generations we have been exhorting teachers to set teaching goals and objectives. However, only within the past decade or so have psychologists and educational technologists persuaded educators to begin defining more specifically the behaviours we attempt to teach in school. This effort has forced great attention upon the individual student, with parallel stress on individualized rather than group-based instruction. We are all now familiar with the assertion of the behavioural psychologist that if the student does not learn, it is not the fault of the student; it is the fault of the teacher or of the educational system.

To one degree or another, we accept this basic principle. The question is how, in a mass system of education, can we create the kind of learning-teaching environment in which at least the basic skills, attitudes, and knowledges we wish to teach are specified in great detail and in which each individual can have an infinite variety of alternatives so that he can learn in his style and at his own speed?

Specialists in innovation and institutional change are calling for the system to modify itself to accommodate *performance* expectancies rather than *time* expectancies for program completion. If we are going to teach towards specific behavioural objectives, allowing the student to proceed at his own pace, we must structure the system to keep track of when the student has acquired each behavior. It is not relevant to talk in terms of so many years of math, language, or science. Obviously, traditional concepts of how we test, evaluate, and store information on each student's performance are largely irrelevant in a performance-oriented approach.

A number of prototype models suggest that courses be broken up into dozens of task units, each of which has built-in evaluation. A student can perform each task unit in any way he wishes, through individual study, listening to lectures, or using programed instruction materials; and when he can demonstrate that he has successfully completed the task, the fact is noted. In the aggregate, this plan would mean that a degree or certificate at any educational level would no longer indicate a certain number of years in school but rather the successful completion

of task units relating to specifically defined knowledges, skills, and attitudes.

Such basic thinking is significant also when education is considered as a lifelong activity. Many students are not interested or ready for everything in an educational curriculum which is organized in blocks of time and by ages of the students. After a number of years, some students may wish to return but find it difficult to reenter the system. If, however, educational opportunity were defined in terms of task units rather than number of years spent in a classroom and if learning experiences were programed in such a way that students could enter the system at any point and proceed at their own pace, children or adults of any age could easily reenter the system at any time.

The average teacher might say that all of this supposition is highly impractical under the conditions in which we teach. And the average teacher is right. Under present constraints in many schools systems, the teacher is on his own with whatever resources he can muster out of his own ingenuity. He is also locked in a system with a set syllabus, set examinations, and a set time schedule which allows little flexibility. Even the information system to keep track of student progress is so limited that the teacher, either at the beginning or at the end of the year, may have little idea of the individual capabilities or interests of students in the class.

In essence, if education is to move in the direction of a learner-centered approach, there must be great changes in each piece of the system so as to provide the resources with which the teacher and the students can work. Each apparently simple basic change may have broad implications. Basic changes in the examination systems, for instance, so as to make possible continuous cumulative evaluation, based on the completion of task units, would involve changes in everything from legislation to record-keeping in many school systems.

If a concept similar to that of the task unit were to be accepted, this change would mean significant new investment in the design, development, testing, reproduction, and distribution of new types of basic teaching materials of all kinds and would require new approaches to automated storage and retrieval systems to afford teacher and students proper access to this variety of new teaching materials.

Such an approach would imply considerably more sophisticated management than now is employed in most school systems. Different financing and budgeting would be required. Something similar to what management specialists call PPBS (planning, programing, budgeting, and sched-

uling procedures) would have to be used. This approach, first used in industry, stresses the detailed planning of objectives and goals, the measurement of the output of the system, and the control of cost needed to achieve output. It focuses on the budget and decision-making processes, particularly on problems relating to resource control, allocation, and use.

The approach also implies networking (PERTing) of what has to happen in each stage of the instructional process and how each feature of the system affects other features. Finally, it implies at least three dimensional accounting: by activity (for example, instruction); by materials to services required (for example, salaries); and by program area or subsystem (for example, social studies). In this way, an administration can obtain better data on performance of the overall system.

It appears that a comprehensive new approach to instruction—stressing task units, new instructional strategies, and new management would likely cost up to a third more per student enrolled than is presently spent for traditional kinds of education. There is some indication, however that productivity would increase by more than one-third in terms of quality, retention of the system, and assurance that we are teaching the students what we say we want to teach them. In essence, it would cost us more for each student enrolled in school but less for each student successfully acquiring specified skills, knowledges, and attitudes which are the objectives of the school.

Let us look at what is actually happening in a variety of countries. Significant trends can be seen. In the United States there are fascinating developments. The Baldwin Whitehall School experiment near Pittsburgh, Pennsylvania, in collaboration with the Learning Research and Development Center at the University of Pittsburgh, is an early attempt to develop a system of completely individualized instruction in one school system. This has involved changing traditional school schedules, developing completely new curriculum materials to be used by students on their own or with the guidance of the teachers, introducing new testing procedures which provide feedback to the student and to the teacher as each task unit is completed, and instituting a new management system to keep track of the recourses which are necessary and to judge the cost effectiveness of the programs.

Another novel concept in the United States is the performance contract. Thus, Texarkana, a city on the Texas-Arkansas border, contracted with a consulting firm for a $5 million program to improve reading and mathematics skills among its students so as to prevent dropouts. It was

thought that the high dropout rate was in large part due to the inability of students to read and to do the necessary mathematics related to the various subject matter areas.

The firm established teaching-learning centers in conjunction with the regular school program and will receive about eighty dollars per student per grade-level increase in mathematics or reading, if this can be done in no more than 80 hours of instruction. If the increase is achieved in time, the company gets a bonus; if it takes more than 80 hours per student, the company is penalized; and if it takes over 160 hours to raise the student one grade level, the company gets no payment at all.

The core of the program consists of self-study software, basically instructional film strips and recordings which are presented in a display device which looks something like a television set. The device itself has a simple computer-like control system, and the teaching materials are constantly changed and revised with experience.

Early experimenters are enthusiastic. Although there is considerable investment in the system, it is hoped that, with careful development and testing of instructional approaches, students with learning difficulties in the regular system can be brought up to the norm, often in less time than is taken in a normal classroom by the average student. The program also promises that if the student does not learn, it is the fault of the instructional environment, not the student; and the company gets paid nothing if its system does not teach. How would you like to get paid only for the students that learn?

At the national level, there are interesting developments afoot affecting entire educational systems. In El Salvador several years ago, the minister of education elected to introduce a massive system of educational television, not as another layer on the traditional system but as a piece of a total educational reform effort. The concept has been to use television as a catalyst for change; and as new television courses are developed, these often introduce new curriculum approaches. Often, the teachers learn the new approaches with the students from the television sequence and from the supplementary materials which are distributed to be used before and after the television broadcasts. In addition, the television programing is linked closely to the national secondary teacher training college which prepares teachers who will then understand the use of the new medium.

Television is also being used as a catalyst for overall educational reform in the Ivory Coast. Here again, a complete reform of the elementary system is under way, and the changes in content and approach will be introduced rapidly in television. The television software, that is the pro-

grams, will be produced at a center adjacent to the national teacher training college which will be located in a predominantly rural area. In this way, it is anticipated that the curricula will take on more of a bias appropriate to rural areas and that the teachers trained in the teacher-training college will be more motivated to stay in rural areas and teach.

Feasibility studies have been done or are under way on the possible uses of satellites in education in India, the Spanish-speaking countries of Latin America, Brazil, and Africa. There is no question that satellites are capable of broadcasting something over wide areas, but it is not entirely clear whether there will be much real impact on instruction partly because the trend in education is away from having all students do the same thing at the same time and partly because of conceptional problems of getting school systems in widely scattered areas and often in different countries to accept the same curriculum and materials. However, there will be great uses for satellites in adult education, in bringing supplementary material to schools, in the exchange of information, and in the linking of computer-based-information storage and retrieval systems in universities and research institutes in various countries.

Britain has introduced the Open University which may completely revolutionise the concept of university education. The concept here is to provide a variety of learning and teaching experiences by the broadcast medium, through self-study material, seminars, and classes organized to suit the convenience of students. Evaluation will be based on the assessment of fairly specifically defined knowledges, skills, or attitudes. A degree will not be based on number of years spent in the institution but rather on completion of learning tasks, and a student may never be in residence anywhere and still get a university degree. It is likely that the per student cost of this university will be less than a traditional university and yet its enrollment is potentially infinite. However, sophisticated approaches to the preparation of teaching learning materials, evaluation, and management must be brought into play in order to make it work.

Indonesia is probably one of the first countries to attempt a true system approach to the reform of education at all levels. Under a UNESCO special fund project, a consulting firm is assisting the government in designing a systems approach to the development of the components necessary in the total educational environment, and the UNESCO chief technical advisor is a systems management expert with a great deal of industry experience. Components of the system will include a curriculum research and development center, new kinds of testing and evaluation approaches, and probably a broadcast component tailored specifically to the peculiar need of Indonesia with its many islands. All will be

molded together with programs, planning, budgeting, and scheduling procedures and PERTed so that the whole will proceed smoothly during its reform and later stages. How this will work, nobody knows, but hopefully the system will include plenty of feedback so that we will know what is successful and why and what does not work and why.

These broad trends place great emphasis on the development of a number of specialized infrastructures and institutions in the education system that have not traditionally existed in many countries. Perhaps basic is the trend toward the establishment of curriculum research and development organizations which are staffed with people who know how to get condemicians to define in behavioral terms what it is that is important in each discipline, specialists who know how to develop new kinds of teaching and learning materials which make possible new approaches to group and individualized instruction, and specialists who can then put it all together in a strategy that can be managed within the financial resources available now and in the future.

These centers also will look at new kinds of curriculum needs dealt with now only superficially, if at all. For instance, what should we be teaching students so that they will have the knowledge, skill, and attitude necessary to

- be productive without poisoning the environment?
- understand the role of population in shaping the world and the possible role of their future families in contributing to problems of overpopulation?
- participate productively in affairs that contribute to peace and international understanding?

Many of these and other contemporary problems will demand interdisciplinary treatment and new kinds of insights in terms of teaching approaches.

Finally, these centers will likely be worried about teaching and learning styles. What are the special learning problems of children from a culture less than rich in abstract stimuli? What are the special problems of children of one language group who must learn in a school which uses a second, perhaps national, language?

Another set of subinstitutions, very closely related to the curriculum group, will have to do with educational technology. What are the kinds of systems appropriate and economically feasible for getting new kinds of instructional materials to the classroom? This equipment can include certain kinds of mass distribution of instructional materials via television or it can include programed instruction materials, 8 mm films, new kinds of workbooks, new strategies such as correspondence study, and so on.

All of these new technologically based approaches involve specialist fields and administrative and organizational structures in order to get the software developed, tested, distributed, stored, and used in a continuously evolving system. Certainly libraries and audiovisual centers of today are unlike the kinds of dynamic systems of storage, retrieval, and display we will see during the next decade or two.

New kinds of testing and measurement organizations will be established in order to keep continuous record of performance and abilities of students. Again, this domain is intimately related to the curriculum and technology infrastructures which will be appearing in various countries.

New kinds of school management structures will be emerging with sophisticated new approaches to the collection of data about schools, student flow, teacher preparation, school scheduling, and school budgeting. This area is closely related to the new breed of educational planners who are staffing the educational planning offices in most countries. These offices, more and more, will be using sophisticated techniques for global assessment of various alternate approaches to improving the quantity and quality of education.

New kinds of educational research institutions are being established in many countries to assist all parts of the system in finding answers to critical teaching and learning problems. One of the more elaborate of such centers was originally described as a mile-long continuum with basic research on learning phenomena at one end and applied applications in school systems at the other end, with all shades and combinations of basic and applied research down the middle.

Where is the teacher in all this? I think that it is obvious that the role of the teacher will gradually change over the next decades. No longer will the teacher be thrown into a classroom to fend for himself. He will have an arsenal of sophisticated teaching, learning, and evaluation materials available in the school; and his job will be more and more to articulate and orchestrate large numbers of resources which he does not now have. All kinds of specialist skills will be needed of him, and it is likely that he will assist and be assisted by other specialists. I think that the prospects are bright for a profession which is much more satisfying than ever before in that there will be much clearer definitions of what we are trying to do and much improved resources with which to do it.

There obviously will be redistribution of functions which are now all performed by the teacher in a self-contained classroom. There will be team approaches to planning and teaching. There will be much more poor teaching, that is, students planning their own studies and helping

each other learn. Specialist administrators will be facilitators, members of the teaching team, providing the resources needed for teaching and learning rather than inspectors and supervisors who act as policemen and wardens.

The environment in which the teacher works should be greatly improved in the next decade. Rather than egg-crated types of schools with a standard number of chairs and limited teaching equipment in each classroom, schools will gradually turn into teaching and learning centers with flexible space and with resources which will gradually move the school toward the concept of being a community center of lifelong education. There will be examples during the next decade of schools which work 18 hours a day with teaching, learning, cultural, and recreational activities available to the entire community. If there is such a transformation, it will certainly enrich the environment for young students who are in the part of the new institution which we now call formal schooling, and it will bring the school back to the community where it belongs.

One of the basic problems is qualified manpower. We must turn our efforts in teacher education institutions and in inservice education to the preparation of a variety of specialists who can be the innovators of the future, who can staff the new strategies of education. We must turn our attention to the preparation of teachers who have the definable skills necessary to take leadership in innovation and who can work in a team which includes many specialists. We must turn our institutions to more research and development in curriculum, educational measurement, and school management. We must take the relevant of management disciplines, of the social sciences, and of academic disciplines and mesh these various relevancies into a total systems approach to educational renewal.

Fascinating examples of diversity in teacher education institutions are abundant. In a number of countries, there is great interest in microteaching, interaction analysis, analyses of nonverbal behavior, and other approaches designed to identify and teach the teacher those behaviors which will facilitate learning. Often, closed-circuit television is used to help the teacher-in-training to analyze his own behavior.

Academies of pedagogy and of teacher education are now being created in a number of countries where teacher educators, school administrators, and educational specialists are being trained for the first time. UNESCO assisted academies exist in Afghanistan, Ethiopia, and other countries. Many of these institutions will use various techniques for reaching teachers' inservice: television, radio, correspondence education, and the like. In Laos, a new higher teachers college will not only train secondary

school teachers but will prepare programed instruction material for use in secondary schools of the country. Teachers in training will participate in this work and thus be prepared to use the material when published.

In India, a National Council for Educational Research and Training has an integrated complex of curriculum and materials development projects, programed instruction and educational technology activities, educational research programs, and advanced training in these and other specialities. Now (probably beginning in 1974) it is planning to produce educational materials for use by satellite.

Spain has, with UNESCO advice and consistence, begun the first extensive program to use computer-consisted instruction in teacher education. A number of the larger centers of teacher education will experiment for the next several years with the programing of much of the teacher-education content so that students will interact with material stored in the computer.

Clearly, the next decade will be one of change and innovation in the various professions concerned with teaching and learning. Teachers, educators, and specialists of 1980 surely will be part of a substantially new educational environment.

All of us, in our various specialities, must seek to find the new structures necessary to contribute most effectively to the whole. Libraries will become managers of learning resource centres. Audiovisual specialists will become learning-teaching technologists, expert in the preparation, testing, and productior of new kinds of teaching-learning systems and materials. Teachers will become orchestrators of many new resources not now available. Administrators will become systems analysts who can put all the pieces together so that the whole is more than the sum of its parts. Researchers, guidance counsellors, reading specialists, and others will cement the various pieces together with their skills and know-how.

How to develop each specialty so that it contributes effectively to the whole is the task of the future. We must demonstrate clearly that we are capable of systematic innovation and compatible with the accelerated pace of change in the world about us.

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The Future of Reading

The future of reading depends upon the priority which society gives its development and implementation, and the extent to which the nature of reading is recognized and understood. This is an oversimplification of a very complex matter which can be expressed in an elaborate design of strategy, no doubt. However, the security of the future is as much jeopardized as it is assured by man's very nature.

When I was as young as Einstein's Theory, I had the impression that relativity had its implications for outer space and the physical world but little to do with me. What a surprise to come to the end of a long career to find how thoroughly the fact of relativity is expressed in everything that reading is, everything reading does, and everything that reading might do and might be.

Eve Malmquist enunciated in our meeting in Copenhagen in 1968 the right of the peoples of the world to read and urged that a worldwide campaign be waged in behalf of universal literacy. Even in narrow self-interest, governments needed to heed that voice. If I were the head of a government, I should be very quick about securing a quality of literacy immune to false propaganda and subversion, useful in producing scholars and experts as needed in all aspects of living, and capable of developing inner resources for all people, including those whose lives involve hardships and relatively little monetary reward. I should be concerned with adult literacy, not only in the provision of instruction but also in the development of materials readily available and relevant to the lives of the intended audience so that the practice of literacy once achieved would be maintained. There would be newspapers, magazines, vocational bulletins, and books for pleasure and information, all designed for the common man's need for survival, progress, and morale. (So often the target audience of published material is the business man, the industrialist, the government worker, or the professional.) I should be as quick to subsidize authors and publishers of such necessary material as I would be to subsidize farmers and to establish health clinics; for I should conceive

my people to be a human society and my responsibility to be greater than that for the maintenance of a hygienic zoo. I should establish educational research centers whose findings would be channeled to the parliament as well as to institutions for the training of administrators, supervisors, teachers, and librarians. I should establish an employment pattern which would leave some daylight hours for reading—something I might do even before building an industrial plant.

Beginnings are always hard, and hindsight is easier than foresight. Some countries seem to have hastened to establish universities and technical schools, educating more leaders than they can place, and graduating technicians before the full complement of technical positions is available. The unemployed either flee the country or seek lesser positions, to do inefficiently and without spirit what they have not been trained to do. Meanwhile, teacher education and teacher inducements, primary schools and primary programs, seem to have lagged in timing and investment.

If I were the head of a government, I should be as much concerned about primary education as adult literacy. Adult literacy takes care of the immediate ten or twenty years. Primary education can secure the future. In either primary education or adult literacy, I should be concerned about the way reading was taught and the sequence of learnings. What is the teacher's conception of the reading act? Suppose that a teacher thinks that reading is decoding the written symbols into the sounds of the language. Suppose that a teacher thinks that reading is more than decoding, but that decoding should come first, and only after that should other aspects of the reading act be acquired. Suppose that 40 percent of the children who enter the first standard (or grade) drop out by the end of the first year, and suppose that only one-third of the children of primary age are in school. Suppose that the one person in a village who can read the pieces of information or misinformation that come to the village has learned only to decode—not to reason, to weigh arguments, to compare, to notice inconsistencies and the absence of certain facts, to observe the techniques of repetition of opinions stated as facts, and to avoid attributing all ills to one cause and all good to one source, the cleverness of stating as fact that only one result can emanate from a certain choice of action.

What can happen, given such conditions? Here you have unemployment or unsuitable employment for your most able potential leaders and technicians, a low standard of living and unrelieved hardship for an increasing population of common men, and the generals and the army for revolution. Add for the common man a literacy limited to the decoding of written symbols, and you have a victim for the logic of any leader.

You have literally handed a weapon to the enemy. You have literally added another avenue for invasion. Surround the country with power-hungry neighbors and you have, within and without, an easy conquest. If heads of government can be made aware of the relationship between literacy and national survival, the relationship between literacy and the progress of a society toward its potential—and that potential may be, like everything else in the universe, an evolving rather than a fixed element—history may have a chance of being different.

My descriptions so far may seem to fit developing countries more than highly industrialized societies, but the latter are subject to some of the same dangers and to others as well. How does it happen that in the United States we still have a shortage of doctors but currently have an oversupply of teachers and professors? What has been wrong with the teaching of reading that has made it possible for our most brilliant students to reduce by simple logic multiple causation to a single cause and to believe that an extremely complex situation can be resolved in a simple act and that act only? How can some of them mistake another kind of conformity for self-expression?

Even more disturbing is the contrast in attitude between the child in the developing country who has the privilege of education and the child in the so-called advanced society for whom education is an unquestionable right. There are exceptions, of course; but one cannot help asking the question of whether there must always be struggle and deprivation if man is to rise and whether comfort is the poison that will destroy him. It is only to be expected that the child of affluence will be less motivated to achieve, or is there something that homes and schools can do to instill a sense of responsibility for meeting opportunity with effort? The only cheer I can give you in the contemplation of this grim subject —and it is only by gloomy contrast—is that some children of the poor in affluent societies are not only less motivated to achieve but progressively so as they match lack of opportunity in the society with an irrelevant curriculum and teachers' attempts to build reading skills on shaky or absent language and experience foundations.

I should like to present a few of the straws in the wind which I think bode well for the future of world literacy.

Item 1. In the United States, 27 studies of beginning reading which provided a comparison of paired methods of teaching came to the conclusion that no one method seemed clearly superior to another. One method seemed to be more successful in some ways and less successful in others: some children benefitted and some did not. With one method the brighter children advanced more rapidly; with another, the less bright

children advanced. The general finding was that the teacher made more difference than the methods. It would have surprised me if marked differences had clearly distinguished one method from another since, after all, many of the same good ingredients were in all the programs studied and many teachers do much the same thing whatever label is used in the masquerade. Furthermore, each method must have had some virtue to have been considered at all. But finally and more importantly, we don't know everything about the teaching of reading yet, messiahs to the contrary notwithstanding; and I strongly suspect that the reason the methods had such similar results is that they were all equally deficient in important elements which we have yet to identify or appreciate. I think the failure of these American studies to find a winner was an extremely wholesome experience, though I shouldn't suggest it as a regular morning exercise.

Item 2. The United States government launched a nationwide crash program for low achievers in reading who came from low income families. The experiment involved vast sums of money for materials. Mountains of workbooks and texts and tests and audiovisual equipment were turned to the task, and teachers worked with a will. It made me think of a storm I once saw in a very dry area in Texas: the great black clouds billowed and glowered; the wind howled; the lightning flashed; the thunder gave its terrifying reply, and just about four drops of rain fell. Well, it wasn't quite that bad, but the results were disappointing to those who felt that money and time and devotion could do the trick. I think this experience was wholesome, too. If methods, materials, and devotion are not the answer, man must face the fact that what he has been doing is not good enough. His works have never failed to improve with that realization.

Item 3. Governments and foundations are financing studies by linguists to describe the languages and dialects of the world. The transistorized tape recorder and considerable personal courage and persistence are going into these efforts. From these data linguists can provide reading specialists of a given country features in the dialects of that country —the features that differ from those in the national language. What sounds in the national language do not occur in the other language at all? What sounds do not occur in certain positions in words that encourage the child to substitute or omit those sounds in those positions in the national language? What tonal differences or stress differences will interfere with meaning? What are the cognates in the two languages? In what ways are the basic sentence types and word structures different? What are the signals to number, tense, sex, and status? What are the varied

meanings triggered by the same connective, preposition, or postposition? What is the significance of word order? If I were the head of a government, I should see that linguists made these comparative studies and that reading specialists used this information in planning approaches to children who speak other dialects and other languages. And I would modify textbooks and methods accordingly.

Linguists are changing our minds about the assessment of oral reading. Kenneth Goodman and others are pointing out the fact that when the black child in the United States sees on the printed page, "She is always gone," and reads them as "She bees gone," he not only has recognized the words and the meaning but has transformed them into his own dialect. Let another child read it his own way, too.

Item 4. A highly controversial television program in the United States, called "Sesame Street," attempts to provide to children of minority groups cognitive and linguistic readiness for reading along with some recognition of letters and numbers. The program is presented with imagination, a fast pace, and cumulative repetition of skills from one program to the next. In some communities, the programs of the week are in steady review on Saturdays. Whether one agrees with all that is done, one cannot argue against the need for such an effort. Meanwhile, all children, minority or not, delight in the presentations. A national campaign for literacy must not fail to employ all available avenues of learning. For years, children have come to school knowing the word "burgermeister" from the signboards advertising beer. With a little push in the right direction, advertisements could impress children with more useful words and basic sentences.

Item 5. In Japan, the government is announcing the advent of a "University of the Air" to make courses in higher education available to every village. My first reaction was colored by recent events. "How wonderful," I thought. "At least, if the student throws rocks, it will be at his own television set." Some people feel that the absence of guided discussion and personal contact with a guru or sensei is enough to spell the failure of such a program at the start. But one cannot help admiring the dream for several reasons. With a transistorized tape recorder and textbooks and course syllabi, and with other students in his same village, and without the expense of travel and food and housing and clothing in conformity with university campus expectations, everyone of ability throughout that whole country has a chance: 1) He has a chance of extended education beyond the television courses if he proves to be outstanding; 2) he has a chance in his own village to discuss ideas on his own level; 3) his village has windows on the world—the world of the

past, present, and future—the world of ideas, of problems, of solutions, of conjecture, of dreams. He can view his life with more objectivity and understanding. Don't think for a moment that that country will not have a more thoughtful reading public as a result.

Item 6. Today all over the world there is an increasing research activity. Thirty-five years ago I could read all research that had been done. Today, I am faced with the impossibility of anyone's grasping all that is going on. The United States has pioneered a retrieval system which provides microfiche and paperback copies of significant research, theory, and bibliographies on special topics. Now the student does not have to spend half his time finding the studies (although I do have an old-fashioned idea that that is part of a good education); he can engage in studying the evidence in his field.

Eve Malmquist has staged a one-man research explosion of over three hundred studies himself, an effort which threatens Sweden with the necessity of a vast retrieval system. Only a few more Malmquists will create the crisis.

The United States has been generous in recent research grants in the area of reading and related disciplines. Screening committees have been set up to review applications and choose the most significant proposals. I must say, however, that with the wheat has come chaff. I have been disappointed in the theoretical grasp which some researchers have shown in handling their subjects of investigation. For example, you aren't going to discover the role of transformational grammar in reading comprehension by giving separate tests of reading and of transformational grammar any more than you are going to find out the role of phonics in spelling by giving a test of spelling and test of phonics which have not been especially constructed to contain relationships. I am eager for the day when a bright, young researcher with time on his hands constructs a reading comprehension test, asks comprehension questions in it, and then separately tests the student's recognition of the linguistic and cognitive relationships within the same material. Then, if the student misses a comprehension item, it will be possible to see whether he missed the companion item of language.

For the past dozen years, I have been nibbling at the edges of this problem of comprehension and its relationship to man's cognitive and effective treatment of reality as expressed in language. I regret having been in an untroubled sleep for the prior years. But I have taken, for example, two sentences from a science text booklet, and introspectively determined the presence of 24 different relationships which help the reader arrive at an approximation of the author's meaning. As one young

researcher instructed me, fixing me with his beady, accusing eye, the relationship of these observations to comprehension must be thoroughly researched before conclusions can be drawn. But lest I lose another generation to guesswork and rioting, I am stealthily including activities in my classroom and in my writing and lectures. You all remember that Alice in Wonderland drank from a bottle and thereby acquired an entirely new perspective. As long as we put students' minds into the little boxes we have been using for so many years, we cannot expect the researcher they become to have a more comprehensive view of their subjects. Relativity must be a part of their education.

One of the most promising developments has been the research which Marion Jenkinson and her colleagues have engaged in at the University of Chicago and the University of Alberta. They are exploring the signals which some of the function words (that is, words which are not nouns, verbs, adjectives, or adverbs) give the reader.

Item 7. For many years, linguist C. C. Fries, with his sentences of the type "The oogley iggle oggled the aggle eggley" campaigned to make language teachers aware of the signals to structure in English sentences. At the University of Michigan, in Puerto Rico, and in Japan, he extended this observation to other languages. His student, Robert Lado, has continued brilliantly. Carl LeFevre has insisted that the unit of meaning is the sentence, not the word. Lee Deighton has observed the effect of the meanings of additional words upon the meanings of previously read words as the reader progresses through the sentence. An extension of these observations to two or more sentences, to paragraphs, pages, and whole compositions clearly proves that meaning is not to be had by focus upon individual words but upon the observable interrelationships throughout the length of whatever is composed.

This truth, once it is thoroughly digested, will revolutionize our teaching of main ideas, and of paragraph, and larger units of composition. The main idea of a paragraph—if indeed the paragraph has one—is not a blind leap from individual sentences to a happy landing but a thoroughly traceable path of relationships between and among sentences, signaled by the cognitive interaction of sentences as well as the type of idea any one sentence conveys. We should have known this fact years ago if we had had the sense to know that language had to be an expression of relativity. We could see that a telephone pole looked dark against the sky and light against the ground yet was a uniform color and shade against a uniform background. Similarly, a word or a sentence cannot escape the effects of its environment. The kind of idea it expresses cannot entirely determine its role.

Item 8. In Copenhagen in 1968, Ahalya Chari and Chinna Chacko described the work of a reading project in developing model textbooks for teaching the reading of Hindi, to Hindi-speaking children in northern India. The educators' "monsoon-proof" reading readiness kit provided concept building, auditory and visual discrimination, and cognitive experiences in language. Readiness tests identified difficulties in auditory and visual discrimination, the copying of Hindi letter forms, and the comprehension of words and sentences. Their first book presented a first lesson, to be taught over a period of several days, which expressed the principle of relativity. The story was elicited by the aid of pictures. Right there in the book an inductive approach to letter-sound correspondences was printed; the child could derive the sound from pictures and words, learn to write the letter, and from the letters learn to decode words he knew in his listening-speaking vocabulary. Right there in the book comprehension exercises and word-meaning exercises did what the teachers had not been trained to teach. At the end of the book, separate tests tested the mastery of specific skills, most of which the teachers had never thought to teach or measure before. The manual listed the basic spoken vocabulary in which the stories were couched and gave several of the dialect variations which the teacher could anticipate and use as bridges for children of other dialects.

Now in Nepal, Chacko and her team of Nepali specialists are exploring the variations among the languages of Nepal, which run the gamut from Tibetan to Sanskrit-type languages, so that the instructional materials in Nepali can meet some of these differences and so that teachers can anticipate the needs of children of another language background. Imagine, for example, the shock to a child accustomed to tonal signals to meaning when the Nepali teacher's pitch is varied to show the difference between a question and a statement.

The Nepali group also hopes to make the workbooks fairly independent of the teacher's time by introducing inductive learning, providing practice, and then, if possible, adding practice items which the child can use to check his correctness in the previous practice items. In this way, good teachers can be released for additional instruction, and teachers who are not so good fail to spoil a good educational experience. Meanwhile, all teachers are exposed to teacher education because each page shows a way to teach something and how to determine the success of that teaching.

Item 9. Gradually throughout the world, children's interests are being considered, and children's literature is being translated into regional languages. In a newspaper in Nepal some time ago, there was an appeal

from a farmer who had a sick monkey upon whom the farmer depended as a cowherd. Would a doctor please come? The Nepali team did not let this opportunity pass. When the monkey was cured, a small plane, carrying writers, an artist, and a photographer, landed near the farm. There indeed was the monkey, dancing in front of the cows to keep them from the wrong course, even slapping their faces with their own ropes when they persisted. Before many pictures had been taken, the monkey found the photographer distasteful and took to a tree as any cow-herdly monkey should; but the artist back in Kathmandu gathered enough information to draw the pictures, and the writers wrote the biography of the monkey who became by choice and talent a cowherd.

If a monkey can become a cowherd, there is also hope for man! We are fortunate to be engaged in those uniquely human achievements, language and reading, which involve constellations of concepts in a network of signals. Our success can mean the extension of the frontiers of man's potential. If through sound instruction in language and reading, we can help retard his headlong race toward self-destruction and his needless, heedless devastation of this rare Eden, there is no end to his promise and meaning in the expanding universe.

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Reading in Iran

In May 1969, as guests of the National Committee on Literacy of Iran, we spent an extremely busy 16 days learning all we could about some of the innovations in education that have been developed recently in that country. This paper records some impressions from that experience.

We intend to describe two institutions which have recently been developed: the "Army of Knowledge" and the National Committee on Literacy. Before we begin these descriptions, however, a few general observations may be in order.

All the land in Iran was formerly owned, in feudal style, by about one thousand families. The major economic reform of the present day is land for the peasants, together with cooperative marketing and improved agriculture. The funds provided to recompense the former large landowners are invested in Iranian industrial development. The descriptive term, "White Revolution," has been used to describe the complex economic and social changes which have marked Iranian history in the past quarter century.

The key economic objective of the Fourth Development Plan (1968–'972) is an annual growth of 8 percent in the gross national product NP). Per capita income under the plan is expected to rise from $240 (United States currency) in 1968 to $320 in 1972, a one-third increase.

The World Bank has reported that among the 43 Asian countries, only eight have averaged an annual growth of GNP of 7 percent or more over the period from 1960 to 1967. They are Hong Kong, Iran, Israel, Jordan, Syria, Taiwan, South Korea, and Thailand. The GNP of Iran is now increasing about 14 percent per year.

The Fourth Development Plan goes beyond economics. The highest priority among the social objectives is assigned to education. The plan calls for the enrolment of 1972 of 92 percent of the children of elementary school age in the cities and of 53 percent of the rural children of

elementary school age. The plan also requires by 1972 a trebling of the number of students in vocational schools and a doubling of the number of university students.

Iran is now investing more than 4½ percent of GNP and 20 percent of its national budget for education. In the past 20 years the enrollment in primary schools has increased twelvefold. For the first four grades of primary school, free textbooks are now provided by the Imperial Organization for Social Security, a foundation under the patronage of Princess Ashraf.

In religion, about 98 percent of the people are followers of Islam. However, there appear to be complete tolerance and freedom of religion for the small Christian, Jewish, and Zoroastrian minorities.

The Army of Knowledge

Iran is a large, thinly populated country. A population of about 25 million people is spread over an area of 628,000 square miles. (For United States readers: this is an area almost equal to that of Texas, New Mexico, Arizona, and California *combined,* but with about one-fifth less population.) The country has nearly 50,000 small villages which contain almost three-fourths of the total population.

The Army of Knowledge was created in 1962 to deal with the educational aspects of such a situation where population was dispersed, living standards were low, and four out of five adults were illiterate.

There is no effort in Iran to present the Army of Knowledge as a final or ideal educational procedure. It is frankly regarded as a crash program to meet an urgent national need in a hurry. On that basis it is clearly succeeding in its purpose. In conjunction with the work of the National Literacy Committee, the national rate of illiteracy has been lowered since 1962 from 80 percent to 50 percent, and the proportion continues to decrease.

In Iran every able-bodied young man is subject to conscription for two years in the army. University students, however, may serve their military obligation after completing their university studies. Conscripted men who are secondary school graduates and who have not been able to enter the university are given the option of entering the Army of Knowledge. Most of those thus qualified accept this opportunity.

These young men are given instruction for four months in basic military discipline and training, together with the rudiments of pedagogy, public health, agriculture, and law. At the end of this four-month period, the soldier is sent to a village, when possible to a village which he knows

or in which he has lived. He serves the next 14 months of his military service in that village as the representative of the Army of Knowledge. He remains in uniform, subject to military orders, and could be called to other duties in the event of a national emergency.

In 1968 it was decided to assign a few young women, selected by lot, to the Army of Knowledge. The young women have some military training and the same pedagogical training as the men in the Army of Knowledge, and they are in uniform. At the time of our visit in May 1969, there were some 2,000 women in the corps of the Army of Knowledge. We happened to see two of them at work. They appeared to be very eager and devoted. There exists also a health corps and an extension and development corps, but in the time available we were unable to examine their work.

During its brief history the Army of Knowledge has also been known as the Education Corps and the Literacy Corps. Established in January 1963, the Corps numbered 7,000 by 1964–1965 and 31,000 in 1969. Its members are currently at work in some 20,000 villages. By 1972 the national plans call for the Army of Knowledge to have at least one representative in every village above 200 population.

A typical day for a man in the Army of Knowledge begins with raising the national flag in the village, followed by morning calisthenics and games for himself and as many members of the community as he can persuade to take part.

Then he teaches in the elementary school for a morning and afternoon session. This teaching is regarded as his primary task. In the evenings or late afternoons, however, he is expected to carry on activities such as the following: organizing the village to build a road to market, building public bathhouses, enlarging the school facilities (including school gardens), administering first aid and teaching personal hygiene, developing small village libraries, persuading parents to send their children to school, organizing scout troops, teaching adults to read and write, organizing cooperative work for purposes of public health, and repairing mosques.

The members of the Army of Knowledge are visited at intervals by representatives of the ministries of education, health, agriculture, and justice. For each 20 members of the Army of Knowledge there is one educational supervisor who is a graduate of the College of Education with not less than five years of practical teaching experience. The formation of village councils to work with the corpsmen is actively encouraged.

Although the letter of the law requires that all children attend school, there would be no school in many villages without the Army of Knowledge. A detachment from the Army of Knowledge is sent to a village

when it has been requested and after the village has arranged for a room or building in which a school can be convened.

At the end of their 14 months in the Army of Knowledge members may volunteer to become regular teachers in the Ministry of Education. Eighty percent of those eligible to do so seek to enter the Ministry of Education. These men then spend four more months in the Teacher Training College in Karaj. After this training they usually return to the village in which they have previously worked.

The primary purpose of the Army of Knowledge is to work with children, whereas the National Literacy Committee has the primary responsibility for working with adults. In practice this distinction is not completely maintained. By the end of 1969, the Army of Knowledge trained some six million adults in the three Rs. Some employed youths can secure education in evening classes with adults. It seems accurate to say, however, that the Army of Knowledge concentrates mainly on the elementary education of rural and village children, while the Committee on Literacy concentrates mainly on adults in the towns and cities.

National Committee on Literacy

The National Committee on Literacy under the immediate leadership of Princess Ashraf has substantial responsibility in the education of adults. The program developed by the committee runs approximately as follows.

Other than administrative personnel, there are no full-time employees of the committee. The men and women who actually do the teaching are all part-time teachers, drawn from a wide variety of other occupations. They may be teachers in the regular elementary or secondary schools; they may be army officers, bank tellers, insurance salesmen, or any of a wide variety of other occupations.

The teaching of adults in evening classes provides a source of supplemental income. Many observations do not suggest that this circumstance lessens the enthusiasm and vigor with which the program is promoted in the classroom.

To qualify as a teacher for adults, the applicant must have a secondary school diploma. He or she then enrolls in a class which offers 22 lessons of two hours each. The course is usually spread out over a period of 22 weeks. In these lessons "the method" is taught. This is the approved method for teaching adults to read, write, and do simple arithmetic. In addition, the prospective teacher of adults is taught how to maintain

the interest and enthusiasm of his class and how to recruit his students in the first place.

Upon the completion of the training, the prospective teacher of adults is given a certificate showing that he is qualified to teach adults to read and write. He then begins what is at first perhaps the most difficult part of his entire career. He must recruit his own class. He may go to the market or the coffee shop, knock on doors, ask his friends, or proceed in any other manner that his ingenuity can suggest. Somehow or other he must round up at least 20 people who agree to study in his class. If he can, he may enlist as many as 40 people; 20 is the minimum. When he is ready to begin, he applies to the director of a nearby school and is assigned a classroom for late afternoon or evening use. This appears to be the only important contact between the adult education program and the Ministry of Education. The director of the school has no responsibility for the adult program which occurs in the late afternoon and evening. The teacher of the adult education program has no responsibility except to return the classroom for its usual purposes without damage.

When the adult class has assembled for the first time and it can be seen that there are really at least 20 adults who are prepared to learn to read and write, a representative of the committee gives the teacher his first paycheck. This payment is only part of what the teacher is entitled to receive. He will receive the rest of the pay, or part of it, when his students "graduate" at the end of the six-month period of instruction. Thus, to receive full pay, he must hold the interest of the class, find means of helping them to attend regularly, and motivate their learning so that they can pass an examina ion supervised by representatives of the literacy committee. If all of the teacher's students pass the examination, full pay is given. If half fail, only one-half of the remaining pay is forthcoming.

This administrative technique has been tried sporadically in schools in England and in the United States and has been called "payment by results." It is not highly regarded by professional educators for reasons that are obvious. However, visits to 50 or more adult classes gave no indication of undue strain or pressure. After all, the greatest problem of the teacher of adults is to persuade them to come to class and persevere. The prospective adult student may say that he is too old, or he is too tired after a day of work, or her household duties are too numerous, or he tried once before and could not remember, or he may give any other excuse. The prospective teacher is taught in his 22 preparatory

lessons how to deal with these objections and how to maintain interest. It is just as important to him to learn these lessons as it is to learn the method.

After the first six months an adult should be able to perform simple arithmetic, write his own name and a few other words, and read simple printed matter. This is what the examination requires.

There is a second six-month program for adults who finish the first six-month program. In the second program more difficult tasks are attempted, following the same general method and procedure. At the end of twelve months, assuming that the adult student has successfully passed the examinations, he receives a certificate. This certificate, when presented to his employer, requires that the employee's pay be increased by 5 percent. An adult who has finished the 12 months is said to be able, in the basic fundamentals of the three Rs, to do work equivalent to that of a sixth grader.

We happened to be present in a class on the evening when the examiner was to test them and thus determine, in part, the teacher's compensation. It seemed to us that the students were determined to get as much money for their teacher as they could. An air of good feeling prevailed, not unlike commencement day used to be in an American college, but without many of the undesirable side effects associated nowadays with these academic functions. There was a simple party; the teacher had bought a cake and cut enough pieces so that everyone in the class could have a bite before undertaking the examination.

We noticed another thing in the classes visited. Not a single classroom, even in the cities, was without freshly cut flowers on the teacher's desk. The teachers or the pupils bring them without any particular sense of timing or responsibility. Most of the classrooms are dreary, poorly lighted, and often in bad repair, their only equipment being battered wooden blackboards. There is something touching about this indomitable effort to bring beauty and grace into an otherwise rather drab environment.

The deputy director of the committee's program said that 23,000 persons were working as teachers in 1969 in the adult education program. The average number at work at any time was 14,500. This figure compares roughly with the estimates (16,000 teachers) given by Princess Ashraf in a press conference. The program for distribution of material to maintain skills already achieved involves about ten million books, including the free, or nearly free, textbooks and pamphlets which are used in the classes. Four books have been developed for distribution to the graduates of the 12-month program.

Consideration is being given to further opportunities for adult learning beyond the 12 months.

In her press conference Princess Ashraf stated that the committee was spending $12 per person on literacy classes for a six-month period. I asked the deputy director for a breakdown of that figure. He gave me the following estimates:

26 rials	Teacher training
400	Average salary of teachers
100	Salary of the principal
100	Salary for janitors
90	Salary for supervisors
25	Payment for classrooms (presumably for lighting and possibly some rent where classrooms were not available)
25	Child care (to look after small children of women who are enrolled)
90	Administration and supplies
40	Miscellaneous expenses
50	Books (difference between the very nominal price paid by the pupil and the actual cost of production)

946 rials or about $12 (United States currency)

The deputy director said that the government grant to the literacy committee for the year 1969–1970 was reduced by 25 percent below the previous year. In addition, he said the committee receives 4 percent of the income from municipal taxes.

The Division of Evaluation forms part of the administrative apparatus of the National Literacy Committee. This division also has charge of textbook preparation, and 15 people are constantly at work in that enterprise. The Director of Evaluation, who has a doctorate in educational measurement, told me that experiments are constantly underway to see if the method can be improved. Other teaching methods had been tried but these were less successful. The method now used had been developed in Iran, originally for teaching children, and then adapted to adults. An annual evaluation and a more intensive study every three years are made. As part of the intensive study, 2,000 graduates from the program were interviewed in some depth to test the retention of recently learned skills. The "new literate" is asked a few questions; if he shows that he can read and write and give sensible answers, this performance is considered satisfactory. Misspelling is ignored. If the response is intelligible and rational, the graduate is judged to have retained the basic advantages of literacy.

The problem of removing illiteracy is not made easier by the char-

acteristics of the Farsi language. It has 30 consonants and 6 vowels, each of which can be written in any of three ways, depending on whether it comes at the beginning, in the middle, or at the end of a word.

The adult literacy classes are held mainly in public school buildings in the late afternoon and evening. The place and time of the classes, however, are adjusted to meet the needs of the students. For example, in the hotel where we stayed in Esfahan a class was held in the early afternoon for employees of that hotel, including the dining room staff and others who would be at work during the evening hours.

On May 6, Princess Ashraf held a timely press conference which provided a useful summary of the work of the Committee on Literacy. The princess said that during the past year more than one million persons had been drawn to literacy classes. As president of the National Committee on Literacy, she noted that during the past year ten million books had been distributed among literates to maintain their skills. The committee spends, she said, $12 per adult person in literacy classes for a six-month period, including tuition, books, and administration. Other government agencies, she said, were spending an average of $40 per pupil. Two years ago the National Committee on Literacy raised about a quarter of a million dollars by a special lottery. The National Committee also receives assistance "from government and other sources." The princess said that education of school-going children is the responsibility of the minister of education. She doubts whether illiteracy can be totally eradicated at once because "the minister of education is already short $15 million which are needed to cut illiteracy off at its source." The committee also faces a shortage of teachers, space, and funds. "We have to rely on ourselves to raise the necessary money; the government has cut our appropriation by half!" There are 16,000 teachers at work under committee auspices. The number of graduates during the 12-month period preceding this announcement was 166,000; "graduates" means persons who have finished *two* six-month courses.

An illustrated four-page leaflet appeared shortly after the princess's press conference. It was designed to stimulate additional public interest in the literacy program.

The translation reads approximately as follows:

Page 1 "To advance our country we must first attain the goal of literacy" [according to] His Imperial Majesty, the Shah of Iran.

Page 2 "If you are an office worker, a housewife, a teacher, a policeman, a man, or woman, whatever your occupation, *you* can help . .

Page 3 . . . the literacy campaign by persuading an illiterate to enroll, participating in teaching the classes, providing classes for your employees,

donating to the budget of the Literacy Committee, preparing in simple language an account of your own occupation for publication by the Literacy Committee under your name, visiting classes to encourage them, teaching sewing and cooking to new women literates.

Page 4 Over 150 local committees on literacy cover the entire country. With the supervision of these committees, and in cooperation with people like you, over a million citizens of Iran are involved. But reaching the goal which His Imperial Majesty has set (to eradicate illiteracy in ten years) will require further effort. This is the sacred duty of every Iranian. Every person we make literate adds to the prosperity of the nation.

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Reading in Australia

In Australia, as in many other countries, a continuing challenge to the schools of this decade comes from those children who, despite several years of the most intensive teaching, read badly, unwillingly, or not at all.

Depending on the criteria of competence used, the size of this group ranges from 5 to 15 percent of any age level in a school population. It is not surprising that teachers continue to be deeply concerned about a problem of such magnitude, especially since those children who remain deficient in reading skills suffer enormous disadvantage in most other aspects of their education as well.

The local situation

Teacher attitudes. A wide sampling of teacher attitudes to the problem will show that many approach it with decreasing faith in the possibility of any real solution. In part this is due to the fact that special educational provision for the poor reader is as rare as that for many other types of handicapping. The disadvantaged ones are seldom able to be placed in groups small enough for effective individual teaching, and there is a notable shortage of the sort of teaching materials likely to assist them.

More important, however, there is fundamental lack of ideas on which more effective teaching practice might be based. Perhaps this criticism could be said to apply to many areas of education and to be true of education systems outside Australia also. But there seem to be special reasons why the handicapped reader is further handicapped by the lack of well-founded teaching ideas.

Sources of teaching ideas. An objective assessment of our present resources for improving teaching practice suggests it would be very over optimistic to depend on them for the information and the stimulus necessary to generate new and more effective teaching procedures. Our

educational research is minimal. Also, those institutions which could be expected to undertake essential research remain generally aloof from the schools in which their research tasks might originate and to which their findings might be expected to return.

In the absence of outside support, the classroom teacher continues to depend on conventional methods drawn from experience and returns almost inevitably to the old recipe, a combination of remedial reading books and regular intensive drill in phonics or other word attack skills. And the proportion of poor or reluctant readers remains generally unchanged.

Some comparisons

Available literature and report. Strangely enough there are many signs that the overall proportion of inefficient readers in the education systems of the United Kingdom and the United States is much the same as in Australia and in certain areas very much higher.

David Holbrook's *English for the Rejected* (U.K.), and Daniel Fader's *Hooked on Books* (U.S.A.), suggest a persisting problem similar to Australia's and probably more extensive (and more understandable) in a number of very large cities with special areas of cultural and economic deprivation. Discussions with visiting educators confirm what the literature indicates and underline the possibility that this is a widespread and intractable problem in even the most advanced education systems.

Reading and research. In this age many types of human enterprise are rising to quite astonishing levels of efficiency mainly because the endeavors are backed by a steadily increasing body of exact research. The effectiveness of research in developing more efficient education, however, is as open to question as it has always been.

As a pertinent example, the field of the teaching of reading would be the most extensively researched of any in education. Jeanne Chall's very enlightening book, *Learning to Read: The Great Debate,* gives some idea not just of the sheer bulk of studies carried out in the United States but, more significantly, of what seem to be the chief preoccupations of researchers. Here could be the explanation of why reading research remains relatively ineffective in changing teaching practice. Very much of the research seems to be at fault because it is still largely concerned with comparative evaluation of teaching methods, despite the many reservations about the validity of such an undertaking that serious researchers have always maintained. Because enthusiasm and strong bias are generally complementary qualities in the most earnest teachers, we have come to

accept them as constitutionally, in the Gilbert and Sullivan mode, either wholly radical or wholly conservative, either permissive or authoritarian in approach, and in the field of reading either enthusiastically "meaning centred" or doggedly "code centred." But it is disturbing to find the assumedly objective researcher quite plainly entangled in this either-or impasse and spending valuable time and resources on projects of very doubtful value.

For the classroom teacher the situation is complicated by the intrusion of another factor—the persuasive publicity of those who jump on the reading bandwagon and produce easily followed systems or laboratories for teaching reading. These are the patent medicine hawkers of the education world, and one would expect that the research field would operate to protect the teacher from them in the same way as authentic medical research moderates the influence of the commercial pill and potion vendors. Eventually, since Australian teachers, lacking their own sources of investigation and stimulation, turn to America and England and find no substantial help there, it may be said that the basic dearth of teaching ideas is fairly general.

This paper offers no firm solutions. The best that it can do is suggest some matters, now relatively neglected, that might repay precise examination.

Potential research and study areas

Learning and teaching. The present attitude of many now conducting investigations into some aspects of education is strangely reminiscent of the man who lost his stud under the bed but searched out on the mat because the light was better. What needs to be found is a good deal of exact information on how children learn to read. What is most commonly sought for, apparently, is a decision on which of two general extremes of teaching method is more effective.

It may seem unreasonable to suggest that reading method is frequently little more than an accompaniment to the development of reading skills; that, for all the specific evidence available, it would often be as justifiable to attribute the development of reading competence to diet as to teaching method. The facts are that many children learn to read without any organized teaching procedures; and many do not learn to read no matter what teaching method is used or how skilfully it is applied. It does appear, however, that for many children, perhaps the largest group at any age level, organized teaching is at least a major influence on the development of reading skill. Further, there are good grounds for saying that

no one teaching method would be suitable for all children and that a composite of the chief elements of both meaning-centred and code-centred methods has, logically, greater claims than the pure forms of either extreme.

Learning processes. Since many children learn to read without any but the most occasional and informal tuition and since this is consistent with the fact that children, before ever coming to school, acquire many other difficult learnings in the same way, it would seem that learning processes rather than teaching methods would best repay close research. Linguists and psycholinguists working on the field of early spoken language acquisition have thrown much light on human learning processes generally, and an extension of their studies to those children who readily acquire abilities with written language (as in reading) without formal tuition could be most rewarding.

Given the possibility that relevant factors could be identified in the successful preschool readers, the presence or absence of the factors in unsuccessful readers would allow much firmer conclusions about teaching methods than are able to be made at present. Some of this work has already been done in the field of the culturally disadvantaged (e.g., by Irwin, Jensen, Hess, and Shipman), but there is little indication that it has been influential in shaping new programs for handicapped readers.

The role of the school. Chall has pointed out the dangers of teachers and school principals carrying out research in reading. In such cases emotional involvement is more common than detached objectivity, and many of their findings must remain suspect. There is, however, a very clear role for those working in the school, apart from the immediate demands of their teaching tasks. Assuming, what is not now generally true, that teachers keep some contact with research, theory, and learned investigation in the fields relevant to their work, they are in an ideal position to make and record observations which support or cast doubt on controlled research studies, provide information suggesting further research, and suggest the possibility of modifying current teaching methods or developing new ones. In this regard some studies and method trials carried out over a period of three years at North Ainslie School, Canberra, may be of interest.

North Ainslie studies

The language of children. The studies had a dual basis. First, there was the concern of the teachers for the handicapped readers in the school. Next, there was a high degree of interest among some of the teachers in

the role of language as a possible fundamental determinant of intellectual and conceptual skills. Generally, it was accepted as a supportable assumption (following much evidence in the field of psycholinguistics) that normally, by the age of about four years, the child will have mastered the language constructions and vocabulary of his particular language community. If he comes from a family with a rich language environment, he will have considerable competence both in using and understanding speech. In addition, he will probably have some acquaintance with the patterns of written language from having been read to from an early age. A child from such a background may be expected to respond readily to early reading tuition, and it does not seem to matter greatly what teaching method or reading system is followed; indeed, many such children appear to learn to read with only occasional and informal assistance.

A surprising number of children, however, will be found to suffer from some form of language deprivation. This may occur because the home environment is low in language skills, there is little regular exchange of ideas in words, the parents do not frequently talk *with* the child or, on the other hand, so frequently talk *at* him that he withdraws from regular verbal communication, or he may suffer from an early hearing defect. A child with such a background will enter school and begin to be introduced to written language under the great handicap that he lacks both competence and confidence in spoken language. What is more, he has already by this time passed through the maturational stage in which the most fruitful acquisition of language could be expected to occur so that attempts by the school thereafter to remedy his language defects are unlikely to meet with great success.

In attempting to devise ways of overcoming reading difficulties of these children a number of studies were carried out. A large range of language samples was taken in age groups five to nine years throughout the school. Some 50,000 words from over one hundred children were recorded under the following conditions: 1) in informal interview, 2) in structured interview, 3) in a small group under self-chosen activity conditions, and 4) individually under self-chosen activity conditions. Without going into detail of the analysis carried out on this material by expert linguists as well as teachers, it can be said that there were substantial and significant differences between the language of those children who read well or moderately well and of a majority of those who read badly or not at all. With a brevity regrettable but essential under the conditions of this paper, it can be said that the great majority of those who failed to read well were found to be deficient in language skills.

The language of provided reading material. It was a logical step from

the comparison described to a comparison between the language of handicapped groups and that of the material they were expected to read. The strong possibility that emerged was that the simple language commonly used in the most popular reading primers or systems for teaching reading was in itself a major source of difficulty for the children with a poor language background.

The language of the early reading primer is unique.

It is notably different from the spoken language with which the young child may be expected to be familiar; its staccato repetition of mainly one-syllable words lacks the flow and rhythm of spoken language; it features short and jerky sentences, artificially conventional situations, and vocabulary. The child who, at age five, is thoroughly master of a wide range of language patterns and vocabulary is able to generalise the apparent rules of an artificial language and so finds it no barrier to learning to read. But the child with a poor language background, lacking confidence and competence in any form of language, is likely to find that the introduction of a new language form as well as the skills necessary for reading sets too heavy a task.

Method trials. A group of children who had failed to read common early reading material and using standard methods was selected and set to work on a different type of reading material. The idea was to use the child's known stock of language as the material for learning to read. This task was managed on a real situation basis by providing classroom activities likely to propel the child into comment and discussion. His conversation was first taperecorded and played back to him as a stimulus to further interest in his own words and as a means of allowing him to become aware of the words one step removed from his original purposeful act of communication.

Next, he was shown how his words could be represented in printed form by transferring them to an overhead projector sheet and projecting them on a screen. After reading his own words back to him and having him repeat them several times, they were then printed on a slip of paper and pasted in his book. By this means, he built up a cumulative record of what he, other group members, and the teachers had said about a number of meaningful situations and incidents in which he played a part, and this became the material on which he learned the skills of reading.

The procedure had the following very clear advantages:

1. It dealt with situations in which the child was personally involved and interested.

2. It made use of the well-known tendency of the child to be interested in and want to recall his own past actions and words.
3. It ensured that he used as reading material the terms and constructions with which he was familiar, thus disposing some of the unknowns that were likely to trouble him in his new enterprise.

At first reading was purely by sight identification of whole words, phrases, and sentences, and it was not until the child was thoroughly committed to reading by this method that he was introduced to phonics, generally first by analysis of simple words already known to him by sight. It was found that by using this method, poor readers or nonreaders made rapid progress to the stage where they could easily read material dealing with known situations; work from written comments, requests, or instructions made by the teacher, if based on an immediate situation in which the children were involved; and given some latitude in spelling correctness, communicate their thoughts in writing to the teacher or other members of the group about an immediate activity. It was interesting to note that when this stage had been reached and children were freely reading material which contained many quite difficult words, the children failed again with the prim language of standard reading systems which seldom extended beyond one-syllable phonetic words. Indeed, after several months when some in the group were quite accomplished readers with a good competence in phonic and sight recognition skills, the children continued to stumble and be ill at ease with the unique type of prose that has always been considered the proper material for learning to read.

Some possible conclusions. The following conclusions seem justifiable at this stage of the North Ainslie studies:

1. At the stage of beginning reading only a small, highly intelligent minority of children has acquaintance with any except spoken-language forms.
2. Spoken language varies significantly from written language.
3. Reading material which is provided is widely different from any form of spoken language and only slightly less different from other forms of written language.
4. Because of its unique form, reading material which is provided constitutes an actual barrier to learning to read.
5. The barrier is greater for those children who for various reasons have only limited competence even in spoken language.
6. For those children whose disability seems to be connected with

limited language competence the situational approach, both using and attempting to extend the child's present language stock, seems to provide a reasonable solution.

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Reading in Canada

The challenge for teachers of reading in Canada, as in any country, must be considered in the context of the educational system and, in a broader sense, the culture of the nation. The background must, of necessity, be limited.

Canada is a vast country bordered by three oceans. In area, it is the third largest country in the world but in population ranks only twenty-seventh. A unique characteristic of the population is that nearly 90 percent of the 23 million inhabitants live within 200 miles of the United States border. The country has been generously endowed with natural resources which provide a basis for a high standard of living, attracting people from all over the world in increasing numbers.

The multiethnic background of Canadians has always been an important factor in the cultural and educational development of the country. The native peoples of Canada, the Indians and Eskimos, constitute slightly more than 1 percent of the population. In the past four centuries the English and French cultures have been dominant. The influence of the French in Canada has been longer than that of the British and, represented by over 30 percent of the population, they still are the largest ethnic group. Combined groups with a heritage from English-speaking countries constitute 45 percent of the population. The remaining 25 percent of the Canadian mosaic of peoples comes from other European countries and Asia.

While there are two official languages in Canada, less than one-fifth of the people are fluent in both English and French. However, bilingualism in the two official languages will become increasingly prevalent as there is a new emphasis on teaching languages from kindergarten to adult education classes. Another recent language development has been the publication of a series of Canadian English dictionaries reflecting the distinctive Canadian characteristics of pronunciations, spellings, vocabulary, and idiomatic expressions in the English language (*1, 6*).

The varied backgrounds of the Canadian people provide a diversity not found in countries with more homogeneous ethnic groups. Because of this diversity, unique cultural characteristics were not easily distinguished. Now, there are increasing signs of a Canadian identity emerging, an identity which is different from unicultural societies but, nevertheless, uniquely Canadian. Independence is resulting in a new kind of nationalism, developing concurrently with increasing contributions at the international level.

Although the people represent a wide range of linguistic and cultural differences, the Canadian mood is clear: desire for an independent identity.

Canadian education

The diversity of Canada and Canadians is reflected again in the educational systems.

Responsibility for the organization and administration of public education has been assigned by the constitution to the provincial governments of Canada. In addition, there is no federal office of education as in Australia or United States. As a result, there is no uniform system of education or a central information office. Each of the ten provinces has its own system of education, and in Quebec there is a dual system, catholic and protestant. The federal government is responsible only for the education of certain groups, such as children of servicemen, Indians, and Eskimos.

The lack of uniformity in educational programs has certain disadvantages including uneven progress across provinces. On the other hand, it contributes to the variety and the innovations which are characteristic of Canadian education. Most provincial departments of education publish curriculum guides prepared by committees involving major teacher participation. Involvement of teachers in curriculum planning, and in some cases interested parents and pupils, has resulted in greater understanding and implementation of changes. A cross-country comparison of guides would indicate that there is a commonly accepted frame of reference, particularly in skill subjects, but also that within the general framework there is a stimulating amount of variance. Numerous factors contribute to the diversity of education in contemporary Canada: historical, religious, ethnic, linguistic, and economic differences.

The use of paraprofessionals and parent volunteers in public education is an innovation that is providing useful adjustments in the programs, for now the teacher has extra time to spend on professional activities.

Such teacher aides may make a unique contribution to the education of pupils with culturally different or disadvantaged backgrounds, especially when this background is quite different from the teacher's. An example of this contrast is in the Indian schools. Few of the teachers are Indians, but Indian teacher aides are alleviating the problem of communication.

The trend over the past 25 years to shift teacher education from normal schools and teachers' colleges to universities is continuing. Because of a dearth of Canadian professional references, textbooks in preservice education courses are, to a large extent, borrowed from other countries. The greatest activity in professional publications are journals and bulletins emanating from the professional associations and universities.

Where education in Canada was traditionally influenced by other cultures, educators now strive to find relevant solutions to local problems. Stability, a main characteristic of education at the time of confederation, is now a century later replaced by an emphasis on innovation.

Reading instruction

In the specific area of reading, a comprehensive study or description of practices and programs on a national basis is seriously lacking. Concern has been expressed in the following words:

> So accustomed have Canadians become to employing sources obtained from other countries, chiefly United States and Great Britain, that they seldom pause to consider what they, themselves, have produced from their own vast experience in public education (2).

Recently, the availability of a *Canadian Education Index* (4) and a *Canadian Bibliography of Reading and Literature Instruction* (2) has demonstrated the increasing number of publications for pupils and teachers, innovations in teaching, and original research.

Traditionally, literature has been a rich source of publications indigenous to the Canadian scene, and growth continues in this area. Quality is recognized by the Canadian Library Association in its annual English language and French language award for the best children's books written and published by Canadians.

Until recently, materials for instruction in reading were written and frequently published in other countries. The new feeling of nationalism is reflected in criticisms of the appropriateness of these publications. For a period of time Canadian editions of the most frequently used textbooks were published, but such modifications were only partially successful.

During the past decade many new educational authors have emerged. Most provinces provide a multiple authorization of readers, and local authorities usually select basic materials of instruction from the list. The proportion of Canadian materials in use is increasing rapidly, and yet materials written and published in other countries continue to be used as alternates or supplements.

An analysis of recent English-language materials for developmental reading programs indicates a variety of emphases: basic readers with sequential skill development, integrated reading and language programs, multisensory materials, and literary series. The selection of materials will, of course, be influenced by the main approach used to teach reading. Throughout the country there are areas where one approach is more prevalent than others. Generally, as they gain experience and advanced qualifications, teachers become increasingly innovative and often tend more to an eclectic approach rather than a single one. The teaching of reading in French language schools in Canada is predominately a phonics approach. In both English and French language schools the teaching of reading begins for most children at the age of six.

Instruction in reading continues to maintain a dominant role in the elementary school curriculum, but there are other noteworthy developments. The continuation of developmental reading programs into the higher levels is increasing. Low levels of reading achievement for certain pupils have led to experimentation in methods and to innovations in diagnostic and remedial assistance. In the larger urban areas, pupils with severe learning disabilities usually attend child guidance clinics or learning assistance centres. Less serious problems may be attended to within the school in a remedial or corrective reading class if the services of a reading specialist are available. In rural areas of some provinces, mobile reading clinics visit classrooms periodically providing the help of a specialist in diagnosis and planning modified programs.

Increased concern over providing for individual differences has led to many modifications in organizing programs. Over 30 years ago implementation of continuous progress plans was introduced. Today the range of plans is great. All have the common purpose of breaking the lockstep progress of pupils in the grade system so that adaptations in materials and methods of instruction will be provided for the above- and below-average pupils. No area of the curriculum has felt the impact of these new organizational structures more than reading, though we are far from reaching a desirable flexibility in all places.

Provision made for individual differences in the elementary school is stimulating necessary changes in the higher levels of education. On the

other hand, departmentalization prevalent in urban high schools is extending down to the lower levels so that greater use may be made of the talents of the specialists than was common previously. In addition, many schools now employ a variety of forms of team teaching in open-area schools.

Accompanying increasingly flexible organizational patterns is a greater emphasis on individualized reading than ever before. Also, concomitant with the emphasis on individualization of instruction has been the rapid development of instructional materials centres. These centres, found in the most affluent and progressive school districts, are designed to help pupils learn how to learn. Technological advances are revolutionizing the teaching of reading still further in schools where educators are experimenting with computer-assisted learning, simulation, and multimedia presentations.

Specific problems

With a cultural background as diverse as that of Canadians, there are language problems which have implications for almost every teacher of reading. In the past, citizens have been exposed to material printed in both languages on government documents, public notices, and commercial materials. This practice will continue, but the teaching of the second language has undergone radical changes in philosophy and pedagogy. Today, the emphasis is on earlier introduction to the second language and a great emphasis on oral language development first, sometimes almost exclusively for three or four years. The teaching of reading in the second language has received very little attention. The four main obstacles hindering a French-Canadian pupil in learning to read English have been summarized as follows:

> the ease with which he can do without that skill, if he is willing to accept the consequences; the relative inefficiency of the English program in his school; the negative transfer of his previously acquired knowledge of French phonetics; and the differences between his mother-tongue and the new language he is trying to acquire (*5*).

Parallel statements could be made for the English-Canadian pupils learning to read in French.

The large influx of immigrants from Europe and Asia adds another dimension to the problem of teaching reading in the second, third, or fourth language. Special language classes are held for new Canadians when necessary. However, the rate of acquiring skill in a new language is

often impeded when the new arrivals continue close contacts with others from their homeland. Also, the minimal language acquired in a crash program facilitates conversation but is often insufficient for reading at a level commensurate with that of the mother tongue.

As in any country with a number of minority groups, teachers often find that many books are unsuitable for a particular group. In the case of Indian and Eskimo children, some special books have been developed, although much more work is needed in this area. Not only are there several languages and dialects among the native peoples, but also all of these have not been recorded. Making book learning purposeful and relevant is a challenge for authors and teachers. The problems of developing suitable materials and methods of instruction are compounded because the needs are varied and the population of each of the culturally different groups is small.

Conclusion

As we enter this decade, we find encouraging developments, continuing problems, and new challenges. It is difficult to reduce to general terms the scope of reading instruction in Canada because of its variations.

The diversity of problems in Canada provides an excellent opportunity for comparative studies on the teaching of reading in English to the English speaking, teaching of reading in French to the French speaking, and the teaching of reading in the second official languages to each of these groups. Further dimensions could be added by studying the teaching of reading in either or both of the official languages to the wide range of other ethnic groups. These factors are of concern at the national level in addition to the universal problems critical in improving reading ability.

Paramount among the challenges facing reading teachers in Canada will be the development of materials for instruction and evaluation which will reflect the emerging Canadian identity and yet provide sufficient scope for the diversity of the population. Then, continued efforts will be needed in diagnosing reading problems earlier and selecting from a range of alternatives to adjust programs to the individual.

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Reading in Germany

This discussion begins with the status of reading at different levels in present-day Germany and then continues to investigate some possible developments in the next decade. What could and should be done in reading for German pupils, students, and adults?

It might be of interest to educators in different parts of the world to know that illiteracy is nearly nonexistent in Germany. Even after the difficulties of the First and Second World Wars, illiteracy remained below 1 percent of the whole population. This factor might be attributed to the German school system which stresses reading, and especially writing, in the first years of school. On the other hand, spoken German is much more in agreement with written German, so that we do not have the same problems of phoneme irregularities which occur in English or French.

In spite of this, in Germany we do have problems in reading. A large number of children with average or high IQs rank low on standardized reading and spelling tests. These children are called *Legastheniker* (you may say dyslexic—whatever that means!).

Is this discrepancy between ability and achieved reading level due to bad methods in school—global methods are usually accused—or due to emotional factors within the child; or is Legasthenie inherited, as one German psychiatrist (Weinschenk) claims? These are questions which have been discussed in the past and probably will be discussed in the future.

Right now a much debated question is, "How early should a child start learning to read?" Should a child begin at six, five, or, perhaps, four years of age? Certain educators may suggest age three or even two. And, if you like, you may teach your ten-month-old-baby to read! It has been claimed by some researchers that early reading enhances intellectual development. Among these is Domain, whose book has been translated and advocated by Lückert and whose ideas have been publicized by radio.

television, newspapers, and magazines. Until now, the promoters of such claims have been unable to prove their theses. Only eight empirical investigations have been completed to date, in addition to hundreds of articles concerning early reading in German kindergartens, homes, and preschools. In most of the eight investigations intelligence tests have been applied twice. Careful studies like the ones by Schmalohr or Rüdiger show that intelligence was not increased significantly despite all claims.

Reading has been assessed by standardized tests in only two of the eight investigations; the others use informal procedures or simple subjective judgments by teachers or parents. Investigation in this area can be improved. It is also important for international comparison that one know what kinds of reading skills or areas one is attempting to measure.

For oral and silent reading I would suggest five areas:

1. *Accuracy* in reading—the percentage of correctly read words of a given text or word list.
2. *Fluency* in reading—the percentage of marked phrases of about two to five words which are read together continuously and with good expression, along with the observance of punctuation and intonation.
3. *Rate* of reading—the number of words read in a certain length of time (or words per minute).
4. *Comprehension* of what has been read—the percentage of correctly answered questions about the text.
5. *Interest* in reading—the voluntary amount of reading done outside of school.

These five specified areas—accuracy, fluency, rate, comprehension, and interest—can be ascertained by every teacher through informal or standardized procedures. The first three or four items in this criterion can be assessed by oral reading of a text. The items are very important in learning to read and in diagnosing reading difficulties. The items of rate, comprehension, and interest are involved in silent reading.

German children read better and faster orally than they did two generations ago. This is one result I found in an experimental study done in 1967 with 300 children randomly selected from grades one through five. Better teaching procedures, especially from analytic methods, may account for this development.

A second result was surprising: The process of learning to read (or learning to decode, understand written symbols, and comprehend content with a low error rate) is accomplished by German children at the end of second grade.

A third result: American children reach this stage—according to the norms of Marion Monroe (1932)—at the end of fourth grade. One main reason for this result might be due to the phonetic structure of the German language.

A fourth result: The development of learning to read within each language—German and English—shows comparatively similar structure and tendencies in the position of certain errors. For both languages, omissions comprise the main error after the learning process has been completed; consonant errors in the first grades come next; and refusals and aids are last.

I have cited some of the findings related to the reading status in Germany at the preschool and elementary level. Because of the fact that reading is mastered by most of the population, more emphasis is placed on literature and writing in secondary schools and universities and for adults.

In Germany spelling problems are discussed more than reading problems. The main mistakes in spelling are due to omission and consonant errors. There are capitalization errors because many words (all nouns) in German are written with capital letters, and there are also many exceptions to capitalization. In this respect English capitalization is easier for the beginning reader.

What can be done in the 70s? What challenges in reading and related areas do we face in Germany? What can be done in the light of international research and literature?

During the past two decades German educators and researchers have again been in contact with people from all over the world, especially with American professionals. Until the beginning of the 20th century, German universities attracted scholars from many countries. The psychology school of Wundt in Leipzig influenced American psychology and empirical research. James McKeen Cattell and Raymund Dodge did extensive research in reading and published the results in German 70 years ago.

In the United States, the work of Gray, Gates, Durrell, Strang, and others inspired me to continue research in reading which was neglected during the decades of the Third Reich.

It is my conviction that international contacts will play a much greater role for Germany in the 70s. This communion might be good for German children, teachers, and parents, as well as for other educators and researchers.

I am also convinced that through application of new ideas in recent learning theories and specifically programed instruction, we will be in a position to teach reading more effectively and objectively. Programed

instruction is connected with the name of Skinner, Pressey, Crowder, Gilbert, and others. In Syracuse, New York, and Ann Arbor, Michigan, I found programed materials of Donald E. P. Smith in use. In Palo Alto, California, I observed first graders in the situation of computer-assisted instruction. In Albuquerque, New Mexico, I saw the effect of Premack's principle on five-year-old children learning to read. In Bloomington, Indiana, I observed Ellson's programed tutors at work with reading failures. In Pittsburgh, Pennsylvania, Omar K. Moore showed me his talking typewriter. These are new developments in the field of programed reading instruction which influenced my thinking and practice for a new approach in beginning reading and for remedial work with students.

This new approach might be called "consequent analytic-synthetic." It includes programed materials and new media, such as punchboards (like Pressey's), tape recorders, and typewriters. The teaching method follows a certain consequent structure: Beginning with a story, the sentences, phrases, and words of the story are analyzed. Out of certain selected basic words, letters and sounds are analyzed and used to form new words. These new words, combined with already known words, form the basis for varied or new stories.

The cycle-form-story [sentence, phrase, word, syllable, letter, sound (analytic part)] and back to new words, phrases, sentences, story (synthetic part) is repeated within every unit. A unit may last for one or two weeks. Each of the 20 to 25 exercises (I call it "Programmierte Übungen") of a unit is programed in such a way that the exact objective (Lernziel) is stated and directions for the specific tasks are given orally, either by the teacher or via tape. Every single item can be immediately checked by the pupil through a BAS-punchboard (Biglmaier-Antwort-Schablone). At the end of each unit there are tests for the objectives of that unit and for that unit including the preceding units. Tape recorders and typewriters are used to assist in the complex language learning approach, including listening, speaking, writing, and spelling.

A similar approach with programed materials was used with children having special reading disabilities. Experimental pilot studies with individuals in a reading clinic and groups of children in classrooms showed significant gains in accuracy, fluency, and speed of reading as well as in spelling abilities. This approach will be implemented in the coming years in several school systems.

A third area which will challenge reading in Germany during the next decade is the reading improvement of students and adults. Teaching reading to adults does not mean overcoming illiteracy, because this is not the issue in Germany; the goal is to improve reading and study

techniques. When I recently asked several thousand teachers about their reading speeds, 99 percent did not know their own reading speed nor the oral or silent reading speeds of children in different age groups.

We know that simply speeding up the reading act is not the solution to our problem. One future task is that of training teachers how to teach important skills. Among the important skills are comprehension and adjusting the rate of reading to the purposes of the individual and to the difficulty of the material. Another important task is that of creating interest in reading in many fields and in many languages. Wouldn't it be good for all people—German, French, English, Spanish, Russian, Chinese, and others—to be able to read and understand the writings of at least one language other than their own?

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Reading in Great Britain

In Great Britain, the conviction that change is necessary comes slowly. But, once the conviction is established, sensible and usually informed and effective action follows. In the field of reading, the sixties have constituted a period of deepening awareness of weaknesses in the teaching of reading—a conviction that had been reached earlier in North America. On a recent visit to a Yorkshire College of Education, a senior inspector of schools stressed that public disquiet over the teaching of reading is reaching from the electorate to members of Parliament; he referred to reading as a "political hot potato." Criticism, both of the reading standards reached in the elementary schools and of the adequacy of the preparation for the teaching of reading provided by colleges of education, is mentioned in national meetings and teachers' reports. Following a period of increasing awareness of deficiencies in the teaching of reading, the next decade should show more positive and widespread efforts to correct the deficiencies.

There are several specific areas where the challenge seems to be greatest. Some are particularly relevant to Great Britain, but some constitute a challenge in other English-speaking countries also.

Before reading begins

Nursery education has a long and honorable history in England. The advantage of this type of early education for children from deprived and inadequate home backgrounds has for many years been recognized, and its considerable extension has recently been recommended (*2*). The aim of these schools is still best exemplified in the writings of Susan Isaacs during the twenties and thirties, the goals being to "stimulate the active enquiry of the children themselves, rather than to 'teach' them," and to "bring within their immediate experience every range of fact to which their interests reach out" (*6*). The work of Bernstein (*1*) and Deutsch (*3*) and the cognitive psychologists seems now to suggest that

the teacher should take more initiative to strengthen any obvious language and conceptual weaknesses of deprived and disadvantaged young children, including immigrants' children.

Concerning early education, two main developments should be considered. First, the importance of the early years must be realized, and this type of education should be increased to give all children the opportunity for early social and intellectual stimulation. Second, the type of education provided probably should be less standardized. In England, early intellectual growth has been traditionally seen in psychoanalytical terms (*9*). Too much guidance from the teacher has been discouraged; emphasis has been placed on child-directed learning. Some children profit greatly from the rich environment of the nursery school where they experiment and learn of their own volition. Others, from very restricted homes, especially with regard to language, cannot afford the time for the more "natural" educational process. Assessment of need and specific, differential help rather than the hopeful, global, and permissive approach helps to develop prereading language and perceptual skills. Once school begins, there is not time for a protracted readiness program because, although the child may learn faster when he is "ready" to read, he still needs much time to master and practise the skill. Vigorous and planned action in the critical early years might, in the seventies, more effectively prepare the disadvantaged child for literacy and his formal education.

The early stages of reading

When Horn (*5*) visited English primary schools, he was very impressed by the informal, individualized approach to learning which he found in many of them. He describes the classroom where "children learn willingly and happily," progressing at their own pace as they exercise some choice and experience success rather than failure. He mentions, however, that all reading problems have not been eliminated despite the happy and relaxed atmosphere of the schools.

Horn, in describing one of the great strengths of the English primary school, explains that in the first two years of school—in the infant schools, especially—the children have much freedom to follow their own interests in various creative activities, including writing. Obviously, reading is taught by a variety of classroom organizations and methods but, generally and traditionally, much reading teaching occurs during the "hearing of reading." This is normally a very short period (because of the 30 to 40 children in the class) when the child reads on his own, usually from a graded reading book, to the teacher. She tells him new words, helps him

recall words he has already seen, and sometimes suggests the use of context clues or discusses with him one or two phonic generalizations. She less frequently questions him on meaning. Ideally, then, children progress at their own pace, and this can be rapid for the intelligent and best prepared. Other children may progress quite slowly. Morris (*7*), in her well-known study, found that about 15 percent of children had not learned to read in the first two or three years of school and that at least 7 percent left the elementary school classed as very poor readers.

That teachers in many infant schools are dissatisfied with their teaching of reading is clear from the numbers attending inservice courses. Those on reading are habitually oversubscribed, as are courses on remedial reading. Teachers are anxious to know about and understand new materials and media, but mainly (and this point is especially true of older teachers) they seek guidance on the organization for reading in the loose framework of the "integrated" or "free" day (*4*).

Morris (*7*) and Goodacre (*4*) have shown that many teachers in English junior and infant schools have inadequate preparation for teaching reading. Often they have little understanding of the various aspects of reading, and thus they have no clear aims for their teaching. When teachers do not appreciate the contributory factors involved in the reading progress, they have difficulty in analysing the reasons for a child's slow progress and in teaching for specific weaknesses.

The great reliance on individual teaching, necessarily brief, coupled with incidental learning produces sometimes a lack of system in teaching reading. Thus, the slower child may not progress in any organized way, finding consequent trouble in consolidating his sight vocabulary and in learning any coherent notion of phoneme-grapheme correspondences. Morris (*8*) points out that ". . . reading is a product of civilization and not, like physical growth, a natural phenomenon. Hence, children will neither begin to learn to read nor proceed to acquire the necessary reading skills if left to their own devices no matter how rich the environment provided by their teachers."

A serious challenge to be met in this decade is the need to clarify for many teachers all that learning to read entails for the beginner, to make teachers aware of the wealth of varied reading schemes and materials which develop different aspects of reading, and, on the basis of some analysis of the reading task, to encourage teachers to plan their day, so that children who need it will have more direct and systematic teaching. Some of this work could be by ad hoc grouping to save time. The wonderful freedom of the typical infant room and the close contact between

teacher and individual child need not in any way be impaired, and the able child will still be able to surge ahead. But for many average and below average children, planned and informed teaching is necessary as they slowly learn to differentiate, remember, analyse, and derive meaning from written words.

Reading in the junior school

Reading in the upper elementary grades. or junior school, in Great Britain is nearly always thought of as remedial reading. Otherwise, reading is already taken for granted as the tool for learning or is thought of as recreational reading. Any idea of developmental reading is surprising to many teachers in junior schools. Systematic teaching to show how to read at different speeds and for different purposes and the attempt to develop comprehension and a critical approach to written material as well as continuing teaching of word analysis skills and a sight vocabulary are novel to many teachers.

When the obvious lack of reading skill of many children, especially in the lower grades, forces the teacher to attempt some reading teaching, many of the problems discussed in the preceding section appear. Lack of knowledge of the essentials of reading makes for inept teaching, and what is done is often to use materials and reading books devised for young children. Yet there are available quite a variety of reading schemes written expressly for the older, slow reader.

Lack of contact between the infant school and the junior school often adds to the problems of the child's continuing development in reading. Helpful discussion between teachers is precluded, and, perhaps more important, at a time when a child needs but a little more "infant school type" teaching, he finds himself in a new school. Here the teacher is perhaps unaware of his needs or lacks the knowledge to provide for them.

The Plowden Report (2) recommends three years in the infant school. In some areas reorganization to provide for this movement is already underway and should continue during the next ten years. Sometimes, too, the infant and junior schools are combined under one head teacher. Some of the difficulties outlined may thus be mitigated, but the junior school teachers will still need to know how to teach basic reading skills to the slower, younger children and to those still in trouble in the upper grades. During the next decade teachers should become aware also of the need for developmental teaching for those children who have acquired the skill of reading and who now need help in using it.

Reading in the secondary school

Most students training to become secondary or high school teachers see no need for lectures on reading. These students often come from "streamed" schools where the poor readers were in the lowest class or even were in the care of a special remedial teacher, as occurs in schools that operate a system of "sets."

Today the trend in the organization of many secondary schools is towards less stratification. When pupils of mixed ability are placed in the same class, presumably very poor readers will be encountered by all teachers except those working with the sixth form. Therefore, most teachers, whatever their subject, should be concerned with the general improvement of reading skill and certainly with the preparation and provision of material which can be understood by poor readers (*10*). Williams (*11*) suggests that remedial work in secondary schools has little transfer to normal classroom work which further underlines the need for positive efforts by class teachers to help the poor readers. This effort again involves, for all teachers, some basic knowledge of teaching reading and particularly some understanding of how reading comprehension can be improved.

Students are commonly skeptical of the relevance of courses provided for them, but recently a proposed inservice course on developmental reading in secondary schools was cancelled through lack of support. Apparently, unlike the teachers of younger children, the secondary school teachers are not interested in reading. In the seventies, teachers of older children should become increasingly aware that teaching reading also affects them. They must realize that they should continue the developmental work of the junior school and, certainly, make adjustments in all their teaching to accommodate the variety of reading skills encountered in their classes.

Conclusion

What constitutes the challenge for reading in Great Britain must, to some extent, be a personal choice. To this writer it seems to be the need for more preschool education which also incorporates some specificity and direction in preparing the child for learning to read; the dangers of incidental and global teaching in beginning reading; the lack of developmental reading teaching or ability to teach basic skills in the junior schools; and the ignoring of reading problems and the teaching of reading by most secondary school teachers.

Any priority for action should be in favor of the younger children, especially in the infant schools. Analysis of the difficulty and more intensive help as soon as the child fails to make progress would avoid the situation where the child progresses inexorably through the graded reading books with increasing despair on the part of the teacher and increasing incomprehension on the part of the child. Teaching such a child to read may take time and much effort in the infant school, but it is even more difficult later.

These areas of weakness clearly relate only to a limited proportion of children. When there is more emphasis on reading during the pre- and in-service training of teachers, this will help us meet the challenge so that still more children can realize their reading potential.

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Reading in India

"The destiny of India is now being shaped in her classrooms. In a world based on science and technology it is education that determines the level of prosperity, welfare, and security of our people."* So starts the report of the Education Commission, New Delhi, India. This vital education cannot proceed without reading.

The need for teaching every citizen to read and write is paramount in India, for a secular democracy like hers cannot long survive with 75 percent of her people unable to read the ballot form. Nor can India achieve her gigantic program of economic and social development if 300 million of her 500 million cannot read. She cannot afford to neglect the development of this vast human resource. From the point of view of the Indian citizen, to qualify for jobs that require education and skills and to be aware of the vocational opportunities of science and technology, one must be able to read well. Furthermore, it is tragic if one cannot enjoy the pleasure to be found between the covers of a book.

This paper is limited to the teaching of reading to the school-going population only.

Population. The biggest challenge in India is teaching reading to its huge population—500 million people, half of them below 18 years of age. Over the next 20 years the expected population increases will bring the figure to 750 million. By 1985 the anticipated student population alone will be 170 million, or about equal to the population of Europe. All of these students need reading skills.

Although growth in the number of school-going children has been phenomenal (almost 80 percent in primary schools), there is a great deal of student dropout and retention in the lower primary stage. For every 1,000 students, as many as 414 leave school before completing class four. And retention to repeat the grade is the highest in class one. However,

* Report of the Education Commission (1964–1966), *Education and National Development*, Ministry of Education, Government of India, New Delhi, 1966.

I would like to mention here that the percentage of dropout now is much less than that of 82 percent in 1922 and 59 percent in 1956. This decrease is significant especially when you consider that the percentage of children attending school has trebled in that time.

Language. Another great challenge in India is the language situation. Although the government of India recognizes only 15 major languages, there are about 1,625 mother tongues, according to the 1961 census survey. Many of these dialects are spoken only by very few people and most of the dialects are not in written form.

The number of different languages and dialects among the children is only part of the problem. Our schools are committed to a three-language formula: mother tongue or the regional language, the national language (Hindi), and English. It is possible that one can be taught these languages, but there are individual handicaps which Indian educators, like others throughout the world, have so far neglected to accommodate.

Sounds. Some of the languages used in India do not have all of the sounds that are in the language to be taught. These sounds require special emphasis in oral activities prior to reading.

In Tamil, *K* stands for all of these various sounds: *ka, kha, ga, gha.* So a Tamil-speaking person has a problem of sometimes not hearing the differences, thereby being unable to pronounce unfamiliar variants. The unfortunate part is that the slightest variation in sound can represent an entirely different meaning. In Hindi the word *Kamla* means the name of a girl, and *Gamla* means flower pot. A Tamil-language speaker may pronounce these two words the same; undoubtedly he would cause great confusion if, for example, he wanted *gamla* (the flower pot) and the boy brought *Kamla* (a girl) or vice versa. The Punjabi language does not have the *zha* sound as in *vision* and *azure.* The Punjabi speaker would say "viyan" and "ayour." In Gujerati there is no *f* sound as in *far, feast,* and *feet.* The Gujerati speaker would say "phar," "pheast," and "pheet."

Another problem is that of the sounding of all sounds as the script suggests when the target language actually omits certain sounds in certain positions. A parallel in English would be that the English speaker would read the word *kite* as "kite," but a non-English speaker might read it as "kitee."

Both Malayalam and Hindi have a syllabary notation. That is to say, each letter represents a pronounceable syllable. Most consonant sounds in English as represented by one letter cannot be pronounced without an additional vowel sound; but in Malayalam and Hindi the *k* symbol represents a pronounceable *k* and *schwa* sound. In Malayalam all these syllables are pronounced in full, but in Hindi there are exceptions, as

at the ends of some syllables or some words. Thus the girl's name *Kamala* is pronounced "Kamala" in Malayalam but "Kam-la" in Hindi.

The Malayalam speaking people learning English may insert *schwa* sounds between consonants because they are accustomed to each letter's representing a syllable; thus they may pronounce the girl's name *Barbara* as "Barabara."

Soft, soothing Hindi sounds are murdered by speakers of a language with hard sounds. For example, in Punjabi the Hindi word *ek,* meaning one, is pronounced as "ekka" with so much force. And sometimes it causes serious problems, such as the mixing up of *thop* and *top*. Once an order for 200 guns (*top*) was sent. Finally, a small parcel arrived containing 200 beautiful, embroidered hats. The clerk who dispatched the massage had substituted *top* for *thop* causing टोप (guns) to become तोप (hats).

Sentence order. Most of our Indian languages based upon Sanskrit have similar sentence order, with the verb at the end and with prepositions written as post positions, affixed to the end of words. In learning English, the Hindi speaker, for example, thinking "Ram good boy is," must learn to read "Ram is a good boy." Thinking, "Good boy Ram with Sita market to went," the Hindi speaker must read, "The good boy Ram went to market with Sita."

Changes in verb. In some languages, especially in Hindi, the verb changes for gender, number, tense, and the relative status of the addressee and subject. The English speaker is shocked to learn that a Hindi verb has 17 forms and that all objects have gender. For example, *cauliflower, beard,* and *police* are feminine and *tomato, door,* and *apple* are masculine. This factor poses great problems for speakers whose languages do not have these characteristics.

Now the reader can understand some of the problems people encounter while learning to speak and read the different languages and dialects of India; and with 179 languages and 544 dialects, one will probably agree that the problem is acute in all parts of the country.

Few books for teaching children to read have supplied the teacher with information on the adjustments she should make for children of other language backgrounds. The Hindi readers developed by the Indian government have listed, together with the basic vocabulary, seven dialect variants which the teacher can anticipate in children speaking those dialects and can use in helping children interpret standard Hindi.

The prevalent methods of teaching reading do not help the situation. The teacher reads a sentence, and the children repeat it. The teacher says, "This is a pen . . ," and the children, not even looking at their books,

repeat, "This is a pencil." Although the children have been taught the letter-sound correspondences in the written code, they are not given the opportunity to use that skill in the initial reading of a passage. The teacher first imposes his pronunciation, his phrasing, his oral interpretation upon his 40 to 60 parrots. The child is not helped to use his own head for learning.

Preparation of teachers. This is a challenge as great as the previous one. Time and again, research has proved that it is the teacher that makes the real difference. Well-trained teachers are the most important factor in the implementation of any plan. Unfortunately, our training program is very weak and inadequate. Many things are done in the same way they have been done for centuries; and as a result, our primary teacher-training schools and primary schools are like museums in which old ways are carefully preserved.

Training institutions are isolated from the College of Education and even more so from the universities and other educational institutions. At no level—primary, secondary, or college—is there a course in teaching reading. The need for it is not yet recognized. There is a course in teaching the mother tongue, but it does not so much as mention comprehension skills. Neither does it include a broad definition of language arts or of reading.

The omission of a course in teaching reading is also true of the 64 universities. There is no course at the university level for the teaching of reading, speed reading, remedial reading, or any other kind of reading. There is no provision for training specialists in reading; the result is that we have very few reading specialists, almost no reading consultants, no remedial reading teachers, no clinicians, and few research workers. The only higher institution at present that has given attention to this important area is the National Council of Educational Research and Training, which started a reading project in 1963.

Research. Another problem in India is the paucity of research. There are no more than 50 studies in all. There are a few studies on children's vocabulary, reading interests, and language development and analyses of language textbooks, children's literature, methods of teaching reading, comprehension, tests, remedial reading, and reading readiness.

Most of the studies have been made at the M. Ed. level, although six were doctoral dissertations. The techniques and tools employed in these studies are mainly questionnaires. Very few universities have concentrated on comprehensive studies of any one problem, and almost none of the studies is at the elementary school level, except a reading readiness test.

There is one study on the problems of reading in the content fields, but problems of teaching the mother tongue and the other tongues and studies on reading, interlinked with linguistics, are nonexistent.

Dissemination of information. The little information available is hard to obtain. The absence of a clearing house makes it very difficult to obtain information on studies and major developments in the vast subcontinent of India. There is no dissemination of information to teacher-training institutions—a highly unfortunate thing. This is one of the reasons why change passes by these institutions.

Tests. The only standardized test in reading we have in India is in Gujerati, prepared by the Gujerat Research Society in 1967 and sponsored by NCERT. And there is only one standardized reading readiness test—done by D. S. Rawat of the reading project. The Stanford Binet Intelligence Test and Wechsler Bellevue Tests are adapted in Hindi and Gujerati.

Professional literature. There are a few Indian books on the teaching of reading that can be used at the training schools and colleges, but these few (about 15 in all) are far from satisfactory. There are no magazines or journals devoted to reading, and foreign journals are usually beyond the financial means and reading ability of the primary and secondary teachers. N. H. Athreya has recently published a book called *Read Better Read Faster* (Modern Management Council, Churchgate, Bombay) which is used for teaching speed reading.

Materials for teaching reading. Readers are available at a very nominal cost to every child in all 15 of the major languages. There is also provision for free distribution of books to needy students. NCERT has published a set of good readers which has now been adopted and adapted in two states, and almost every state has asked for help and guidance in revising its own textbooks. I think this is the one area in which there exists an awareness of the importance of teaching reading and of having good materials. There has been considerable improvement in textbooks all over the country in the past five years. Even private publishers have improved their standards. The content of these books has improved; more skills are included in the books; and the format and design have considerably improved since the production of the reading project books.

Textbooks are the only tools used for teaching now. There are very few manuals and other teaching aids, but there are some commercial alphabet and story charts besides the reading readiness kit produced by the reading project. In the past, workbooks have been available only for reading project readers, although recently, workbooks have been brought out by some private publishers. There are no reference materials (dictionaries, encyclopedias) for children.

Recently, there has been a spurt in the production of children's books. The institution that deserves special merit here is the Children's Book Trust of India. It has consistently published quality books for children. The National Book Trust and the Southern Languages Book Trust should also be specifically mentioned.

Major newspapers are bringing out children's magazines which are widely read. *Chandamama, Parag, Balmitra, Science Today* by *Times* of India, and *Children's World* by *Shanker* are some of the best of these. *Children's World* is unique since most of the contributors of this magazine are children themselves.

Library facilities at primary schools or, for that matter, at all levels (including teacher institutions) are small collections kept behind locked doors. There are a few Bal Bhawans (children's centers) which do have excellent children's libraries. Other mass media are not used to their fullest extent.

In short, to improve reading in India we have only to produce a few million good schools; improve teaching methods; train all the teachers that are needed to teach 170 million students; reorient the old teachers to be more efficient in the teaching of reading so that children will be able to read and draw conclusions, make inferences, evaluate, recall, rearrange, and reconstruct ideas; and establish a lifelong interest in reading. We need to get specific information regarding reading problems, better methods, and descriptions of the major languages including the differences and similarities between local dialects and regional languages. We need to bring out more children's literature to maintain the reading habit. We need to provide libraries in every nook of the country. We need to prepare tools for survey, diagnosis, and evaluation of reading abilities; we need to train reading specialists. You will agree that it is a challenge. But India has shouldered equally great challenges successfully in the past. Armed with nothing but willpower and determination, did she not gain her independence? Was it only five years ago that she was threatened with starvation and poverty? And now, in a short time, not only does she have her granaries full, but in a few years she will be able to export food grains. At various times in her history, India has made great contributions to the world; and perhaps the miracle of enabling her 500 million citizens to read may be yet another important contribution. This is not a dream. It will come to be.

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Reading in New Zealand

Judging by the responses of visitors, typical New Zealand classrooms are not greatly different from those in the United Kingdom, United States, or Australia, and the challenge of the future is one we share with colleagues throughout the world. For a variety of reasons New Zealand has always enjoyed a relatively high level of literacy by Western standards: but although it can be shown that this level has risen steadily from generation to generation, there is little room for satisfaction. Almost two-thirds of New Zealand children fail to receive the school's stamp of approval for their performance after at least ten years of compulsory attendance. Ironically, the past decade could be called the decade of the dropout.

We become conscious of the wastage and inequality as we face the acute learning problems arising from cultural diversity in a rapidly urbanizing society. These problems develop their most painful tensions across racial barriers. In our society the degree of divergency both between races and within racial groups may be less extreme than in most Western countries, yet it faces us already with enormous problems of education and justice which must certainly be a major challenge of the present decade (*3*). The harmonious race relationships for which New Zealand is renowned are not likely to persist if this challenge is not met, and the tendency for many Polynesian people from all over the Pacific to seek a congenial life in New Zealand enlarges the problem daily.

The problem of educating "disadvantaged children" is normally seen as a discrete one affecting a particular sector of the community. It is the thesis of this paper, however, that this problem is the extreme manifestation of a much deeper cultural cleavage between schools, on the one hand, and their pupils and modern society, on the other. Whatever our point of view on these matters, the challenge is to match the explosive need for a broadly literate society by an equally rapid improvement in the efficiency of schooling.

Meeting the challenge in depth

Even in the most advanced societies schools have failed to achieve that 19th century dream of a universally literate community. To explore and remedy this failure is the great challenge of the future, and at least the groundwork must be covered in this decade. If method has proved a disappointing avenue of inquiry, in what directions should our exploration move? The human species has achieved for itself the universal transmission of speech. Have we sufficient clues from the broad span of research in learning? in human development? in psychology? in linguistics? in sociology? to make bold steps towards a restructuring of schooling which would yield something of the same success in teaching reading and writing? An accumulating body of evidence suggests the need to explore the deep, cultural forces *within* our schools. By a brief exploration of three suggestive areas it may be possible, in the remaining part of this paper, to point to the need for deeper research in this area.

The application of fundamental learning theory to basic teaching. More has been written about the teaching of reading than about any other school subject, yet it is difficult to find a single, clear statement of how basic learning theory is relevant to teaching this vital skill. In all the meticulous, scholarly analysis in Chall's *Learning to Read: The Great Debate* (*1*), for instance, there is hardly a mention of such fundamental matters as reinforcement contingencies.

Preschool learning of the spoken language. If there was ever a suggestive model for language learning, it is this massively successful process. The learning here is *so* successful that linguists such as Chomsky (*2*) try to explain it away as something other than learning—the work of a strange, innate ghost in the machine, a "language acquisition device." Since we can't wait a million years to see if natural selection will finally provide all children with a "reading acquisition device" (and Chomsky with a grain of justification), we could profitably spend the next decade analysing the real reasons for ease in learning speech behaviour. It may be a more simple matter than we think to apply some of the principles to the teaching of reading.

Unexamined assumptions upon which traditional schooling has been founded. A few powerful assumptions appear to dominate *every* method of teaching reading, simply because they express what we believe to be "teaching" or "instruction." Such assumptions may also help to explain some of the *unplanned learning* which clearly occurs in our schools, learning which is often the very opposite of what is being "taught."

The influence of cultural assumptions upon the teaching of reading

"Surely," says the student teacher, "a child must learn the elements that make up each word and then be able to read each word before he can read the sentence?" That *surely* is the telltale sign that an appeal is being made to an assumption, a principle so general and fundamental to the person concerned that to doubt it would be almost impossible. Hence the emotional overtone: Either you must accept this or you are an impossible person—plain crazy.

These unexamined first-springs of action and judgment have more to do with our teaching than such conscious things as methods or goals—they permeate every method or goal as the very medium through which it is understood and put into practice. Assumptions are the very stuff of common sense. If it were, in fact, the case that a particular assumption about schooling *misrepresented* the nature of a learning process, then its effects would be extremely pervasive, difficult to detect, and even more difficult to remedy.

Many influences on our teaching today spring from cultural roots in a society different in many ways from our own. Traditional concepts of schooling were laid down before the ideal of universal literacy was born. Our forefathers attempted to implement this ideal by providing an already existing schooling *for all;* and there has never been any serious doubt in our Western minds about what schooling entails. You have to belong to a special élite who have not been schooled, like Huck Finn or Jim, if you wish to consider the matter without prejudices encultured by the school itself.

The school institution reflected the aspirations, the beliefs, the prejudices—in a word, the culture of upper-middle-class 17th and 18th century western society. We could characterize this culture very crudely by listing some of its traits:

> puritan, individualistic, competitive, scientific, optimistic, authoritarian, mercantile, industrial, industrious (and the Marxists would add, imperialist—let us be content with patronising and superior).

Assumptions springing from this virile culture remain as deep-seated influences in our modern conception of schooling. Many of these assumptions are fruitful and humane, but some stand in need of scrutiny.

Correction is a primary function of teaching. The tick and the cross remain the two most universal symbols of our profession, and a large body of teaching time is still taken up in correction, evaluation, and, in the past decade, objective testing. In order to fulfil this judicial role,

the school tends to divide every task into a large number of discrete responses which may be judged clearly as right or wrong. In language tasks these units are usually words or letters, but the vogue for ten comprehension questions extends the range somewhat. If you fail to correct all the children's errors, you have somehow failed miserably as a teacher and you suffer anxiety. As an affect, the disadvantaged child, for instance, soon learns that the production of language of any kind is a hazardous enterprise. He faces such a cumulative barrage of correction that he must reject either his own ability to operate linguistically or the school's right to force its standards upon him.

By contrast, correction plays very little part in preschool learning. Approximation and self-correction rule the learning schedules of preschoolers, and the concepts of right and wrong are normally reserved for purely moral engagements. If the assumption that meticulous correction is necessary to language learning were sound, few children would learn to talk. What we actually find, however, is that overcorrection has often been associated with the rare cases of failure in learning to talk.

Effective learning schedules in classical learning theory also display the principle of approximation by small steps to the final, perfect response. Error cannot be defined in absolute terms, only in terms of movement away from the desired response. School learning, especially in reading and spelling, makes little provision for this principle, preferring the traditional absolutes of right and wrong. Furthermore, there is increasing evidence to show that feedback and self-correction are vital components of any skill and should not be dominated by the outside agency of the teacher. By completely taking on himself the responsibility for correction, the teacher tends to cripple or distort the development of the very skill he attempts to teach—except, of course, for the lucky 30 percent who beat the teacher to it and do their own correction and confirmation. Finally, correction by the teacher often has the character of a negative reinforcer carrying the danger that the teacher will lose control of the learning situation and produce aversion.

Competition is the most powerful and reliable form of motivation. This assumption is ideally suited to the production of an educational élite at the expense of the majority. Most teachers have been sufficiently alerted to the dangers to avoid the grosser forms of competition, but basically the assumption stands unquestioned. Healthy competition is what we try to encourage in our classes although nobody has attempted to define it. We need very little reliable testing to give us sufficient, confidential information about the ranking of our children, a monthly objective test at the most. However, almost every set of responses elicited

from children in daily work is both quantified and publicised in the service of competition. The lower quartile of our New Zealand six-year-olds has already amassed sufficient evidence from such procedures to demonstrate a fully formed failure complex.

In the almost universal success of learning the spoken language, competition plays no significant role. Indeed, a proportion of the rare failures include twins or rival siblings. Preschool learning is motivated and paced by inner needs.

The predictions one would make from classical learning theory about the results of a competition-oriented learning environment come very close to what actually happens in learning to read and spell: high motivation among high performers (who have no real need for extrinsic motivation); low motivation among ordinary learners (because of low reinforcement); and confused motivation tending towards anxiety neurosis among the poor performers who collect the negative reinforcement again.

The real business of learning is concerned with performing better today than yesterday or last week; it has absolutely nothing to do with doing better than someone else. Reading is a highly personal and highly complex skill, and it is through the purposeful exercise of reading in the service of joy and understanding that learning is extended at a maximum pace. Furthermore, reading is not a performance skill like speaking; it is a thinking skill like listening. The skew towards performance given by both assumptions we have considered has disastrous effects on the reading of many children.

What is learned is what the teacher teaches: if children fail to learn what they are taught, they learn nothing. This is a much more difficult assumption to get out into the open—hence the clumsy statement. The traditional school looks upon failure to learn the explicit objectives of the curriculum as a vague, neutral state of ignorance. The school has a clear image of itself as instituted to teach only the most valuable things in life. If many children fail to profit from the instruction, that is a loss to be regretted and to be laid to some outside cause. This assumption has tended to blind us to the fact that children always learn from a situation; if they don't learn what the teacher intends, they learn something else. Teachers never fail to teach. What the children learn springs as directly from the environment of instruction whether it reflects what the teacher intended or not. Of all the influences responsible for producing aversion, the school must rank highest of all. It might be said, not altogether cynically, that if you want to teach a population to avoid something, put it in the school curriculum.

Here again, classical learning theory would predict just the sort of range from enthusiastic competence to active aversion which we find in children's attitudes to reading and to books. The school would like to claim the competence as a direct result of teaching and dismiss the rest as due to a host of extraneous causes. Learning theory would suggest that if children are taught a complex developmental task—such as, reading by methods which minimise extrinsic, positive reinforcement and maximise negative reinforcement and impose extrinsic pace—there will be a high proportion of aversive learnings springing directly from the instructional situations themselves.

We must be prepared to include in our frenetic measuring and recording the total effects of our programs. The final distaste for books, the apathy, the withdrawal, the laziness, the bitterness, and the revolt are too often taken as causes which should be laid on the children's consciences rather than as effects for which the school must answer.

Analytical knowledge about a skill is required for productive facility in the skill. Although this assumption has been thoroughly discredited by both educational and linguistic research, it persists as a deep and pervasive influence in our teaching. Both preschool learning and learning theory further discredit the assumption and suggest that many linguistic confusions may, in fact, be caused by teaching according to such a misconception.

Conclusion

It is the thesis of this paper that our schools today unwittingly perpetuate untenable assumptions about the nature of learning and that in doing so they may be perpetuating the traditional failure to achieve that goal of universal literacy so urgently required in the modern world. This would seem a vital area for research in this decade, research which is clearly demanded by evidence already at hand and by the call for justice in education by a generation of dropouts, failouts, and optouts. This is a cultural and a moral problem as well as an educational one. Whatever the causes of such dehumanizing results of schooling, clearly the challenge of the decade is to discover and remedy them.

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Reading in South Africa

The problem of reading, a central, never-ending, and sometimes disheartening interdisciplinary problem, reminds one of the two boys who with their father's help took great pains in training their dog for a coming race. The race was held, and the dog came in last. The following day, when the two disappointed boys were walking in the veld and the dog was drinking water at a pond, one of the boys said to the other, "Let's drown him." The other thought it was not such a good idea and suggested, "Let's rather run away from the bloody thing." However much we would like to do so, we cannot drown the reading problem; neither can we run away from it. Passing the buck from the college professor to the kindergarten teacher merely stimulates the vicious circle of blaming while hitting at the problem from the outside. This vicious circle of blaming upwards and downwards is also typical of the attitude in South Africa. The decade of the 60s saw the first attempts to break this circle at the Mobil Reading Laboratory at the University of Stellenbosch and to offer a more positive approach to cope with the wholesale neglect of developmental reading potential at secondary school level: standard VI-X/grades 8 to 12.

The problem of developmental reading in South Africa more closely defined. Reading, the supreme R and the greatest cultural achievement of man in his language advancement, occupies a unique and central position among all school learning and other cultural activities. Reading efficiency cuts vertically and horizontally through all scholastic achievement and is, therefore, at secondary school level in particular (in spite of an above normal intellectual ability), the most important single factor causing scholastic underachievement—perhaps the most tragic result of a neglect of reading potential.

Midst the alarming picture of learning difficulties and more specifically scholastic underachievement, underdevelopment of reading potential is one of the most challenging questions of the present day South African secondary school—a problem having its roots deep in the soil of the

primary school. As the heartbeat of the secondary school curriculum, reading spreads over the whole range of school subjects and is, therefore, no isolated border problem for only the language teacher: a pupil with a reading problem, either remedial or developmental, is a child with a language problem and therefore a personal developmental problem, reaching for cultural adulthood and efficient scholarship.

While reading ability holds a primary position at the primary school level, it is much more of a basic functional learning tool at the secondary level, often resulting in its being overlooked too easily. As about 90 percent of all secondary school study activities are concerned with reading, the secondary school pupil is confronted with several million words every year, a condition which, quite understandably, results in a strong desire for fast reading. Also, in our present day "word culture," we find a growing need for fast reading, though this is often merely an irresponsible, thoughtless skimming of the page with little or no stimulus to actual thought mainly because of a lack of educationally sound reading guidance. Midst the increasing reading demands of the present day secondary school, one might rightly ask whether the time has not come for the South African secondary school, in particular, to reconsider the pupil's overload of nonacademic extras and start guiding him more specifically toward truly efficient reading with a responsible balance between speed and comprehension as a fine art of successful study.

To read with comprehension at a sensible, economic speed is a prerequisite for study success and scholastic progress in each subject, but this advanced language skill is not something which the pupil at secondary school obtains by mere chance. To implement reading as a study tool to its best advantage demands continued guidance from every teacher in each subject and honest effort on the part of the pupil.

The present problem of unused reading potential, not only with the intellectually gifted pupils but more specifically with its virtual neglect at secondary school level in South Africa, is considered a result of the irresponsible supposition of the secondary school teacher that the pupil's reading development was completed in the primary school. This supposition, along with the resultant lack of continuous guidance in advanced developmental reading techniques in every school subject, revenges itself by diminishing the pupil's scholastic and cultural achievements and by slowing down the growth of his command of language as a developmental medium.

Efficient reading and efficient study are closely interwoven, and the timely prevention of scholastic underachievement by means of a more systematic awakening and implementation of developmental reading

potential and reading as a refined study is a long term investment in continued academic success and cultural being.

Some findings from a developmental reading research project. During the first half of the 60s a reading research project with resultant far reaching effects on the promotion of developmental reading in South Africa was undertaken by the writer at the Mobil Reading Laboratory. The aim of this research unit was the following:

1. Exploration of and reflection on the reading phenomenon as a language activity and the deeper language-reading relationship, in view of a preliminary theoretical evaluation of the *Developmental Reading Program* of the Reading Laboratory of William S. Schaill of New York.
2. Experimental trial of the Developmental Reading Program in view of an empirical evaluation of its claims to an increase in reading comprehension and speed and their proportional relation, as based upon the three basic concepts of a) eye-page relationship, b) eye-mind relationship, and c) reading with a set purpose. (Accordingly, this then constitutes skillful reading at a flexible, adjusted reading speed.)
3. The theoretical and practical location of the Developmental Reading Program within the framework of the secondary school classroom practice and its possible use as a preventative or remedial program with pupils whose reading is more severely retarded.
4. Formulation of possible answers to questions such as a) the validity of the supposed significantly unused reading potential among secondary school boys and girls; b) the differences between boys and girls, older and younger, and intellectually more and less gifted pupils when presented with such a course in advanced reading techniques; c) the influence of acceleration of reading speed on comprehension, the quality of spelling, and the quantity and/or quality of vocabulary; d) the influence of reading visual acuity and periometric eye-span on positive implementation of the previously mentioned reading program; e) the instructive or educationally formative influence of such an advanced reading program on the pupil's personal learning intention and self-confidence and possible transfer value to other facets of school learning; and f) the best school standard/grade, educationally considered, at which to introduce such an advanced developmental reading program.
5. Submission or recommendations as to the implementation of this Developmental Reading Program and possible adjustments of the program in view of the South African secondary school situation.

The method and scope of this research unit included the following:

1. A study of the content, structural organization, and claims of the

Developmental Reading Program Manual and technical equipment of phrase flashing and the reading ratiometer (which included a visit to the reading laboratory in New York) and the formulation of possible questions for evaluation.

2. The application of the initial test battery on 600 secondary school pupils from standards six to ten (i.e., eighth to twelfth grade) in view of the selection and pairing off of controlled and experimental groups (tests: vocabulary, comprehension, language usage, and reading speed). After pairing off, the rest of the total test battery was applied to the selected experimental and controlled groups: IQ, mathematics, spelling, group-Rorschach, personal adjustment questionnaire, visiometry, audiometry, and periometry. Apart from this battery of tests, the school staff was asked to rate each pupil as to his learning and general school intention and attitude.

3. Trial of the Developmental Reading Program over a period of 32 weeks for two sessions of 35 minutes each weekly with groups of eight pupils each: one session was devoted to group discussion of the contents of the *Individual Reading Manual* and one session, for practice on the reading machines and follow-up testing. Progress was plotted on individual progress profiles.

4. Retesting of the research group of 240 pupils at the end of the 32-week experimental period and comparison of the achievement of the controlled and experimental groups.

Some conclusions

Based upon the research and considering the background of the hypothetically put questions, the following can be concluded.

1. There exists highly significant empirical verification for the supposition of the existence of significantly unused reading potential among secondary school boys and girls, and the optimal utilization of secondary school pupil reading potential is severely neglected because their reading guidance is considered terminated by secondary school teachers in an educationally irresponsible way.

2. Boys, especially at the junior secondary level (standards six to eight/grades eight to ten), progress more significantly than do girls of the same age.

3. Younger (junior secondary) pupils progress significantly faster than do elder pupils in standards nine and ten (grades eleven and twelve) on the same reading program and material.

4. The Developmental Reading Program appeals to all intelligence levels equally within the same normal classroom situation.

5. Comprehension shows no statistically significant increase as does reading speed. The Developmental Reading Program as experimentally used in this research unit cannot be excused from overaccentuation of the aspect of reading speed at the cost of a parallel increase in comprehension. There is a danger that, in the mechanical reading situation of reading apparatus, overenforcement of phrase reading with tachistoscopic drilling and ratiometer chasing can easily lead to a meaningless, pseudo form of reading in that so-called "visual bites" will be taken from the page instead of meaningful thought units. This practice must be prevented. Overmotivation of the pupil to achieve the aims and promises of the program must be considered a possible danger. Reading speed must be restricted to a responsible speed of comprehension under the jurisdiction of the language intention and reading conscience of the reader; it may never be conditioned to indrilled eye movements or standard speed tables. It is a basic educational reading principle that reading speed in terms of words per minute may never be forced artificially. Individual pupil readiness for any such developmental reading program must always be respected and never be programed into a rigid standard scheme. Reading machines have a definite, but limited place in any such reading program; and it must be remembered that they are only aids in the attainment of the ultimate goal of language development through reading. They must not dominate the developmental program.

6. There exists no empirical verification of a statistically significant relationship between reading speed and the quality of spelling.

7. A significant quantity of vocabulary does not guarantee significant reading progress. Progress in developmental reading is associated more with the language conceptual quality than the quantity of vocabulary. Vocabulary should be improved by increasing the understanding of words, rather than adding to the number of words which are recognised but mean nothing to the pupil, except quantitative saddles. Parallel increase in comprehension and speed links most intimately with increase in the quality of vocabulary building.

8. As regards the quality of reading, visual acuity and eye balance have no statistically significant influence on progress in such a developmental reading program.

9. There is statistically a positive and significant relationship between periometric eye span and speed of reading, but this positive relationship is not to be generalised to reading comprehension.

10. The Developmental Reading Program did not succeed in motivat-

ing the expected positive change or carryover in the pupil as a person and student in general—at least not statistically significant. The program is too mechanically set up and programed, with speed of reading too prominently in the foreground.

11. The Developmental Reading Program had no general carryover effect on other school subjects and, therefore, failed to constitute a more long term and widespread language experience for the pupil.

12. As for localisation, level, and way of introduction, the Developmental Reading Program can best be used as a preventative reading approach within the ordinary language curriculum of the junior classes of the secondary school, but not as a remedial technique with pupils who are seriously retarded in their reading. Any such developmental reading program should, therefore, always be applied with the utmost educational caution, with one's bearing in mind the individual readiness of each pupil to ensure a balanced and responsible acceleration of both speed and comprehension, i.e., speed of comprehension, in order to promote a sound and responsible reading attitude.

The challenge of the decade. The greatest future challenge for South Africa will be that of assimilation and consolidation of reading research findings of the 60s, a decade in the history of reading advancement which was often one of important exploration and, within this framework, the challenge of honest estimation of the educational implications of unused reading potential at secondary school level and its effect on or link with scholastic underachievement.

In close connection with this challenge of honest acknowledgement that advanced reading development is one of the most neglected aspects of post-primary school education in South Africa today, remedial reading and its emphasis will have to be reconsidered in full educational perspective. The danger actually exists that one-sided focus on remedial reading facilitation and services might blind educationists of their responsibility towards the large percentage of pupils who are as urgently in need of specialised reading guidance for efficient scholarship in each school subject. The scholastic underachieving pupil who is not reaching his reading potential, but who is not a remedial case, is mostly a forgotten child in the secondary school. Providing systematically for these forgotten pupils with underdeveloped reading potential is to the author's mind a challenge as important as the foundation of more reading clinics for dyslexia.

Acknowledgement of the scope and seriousness of underdevelopment of reading potential and link with scholastic underachievement is, however, only one aspect of the problem, while the challenge of coping with

the problem is actually put to the test at the stage of providing a specially trained staff to guide all secondary school pupils in the fine art of reading as the most important study tool. This provision of an adequately equipped staff is as important, or possibly more important, than providing still more and better school library facilities.

At the Mobil Reading Laboratory of the University of Stellenbosch a start has been made to introduce all secondary school student teachers to the problem and implications of advanced reading development and possible measurements to cope with it in school practice. The strategy to challenge exstudents, especially those with pupil-counseling responsibilities, to start a developmental reading centre at their school to cope with cases of scholastic underachievement, where the underlying cause is obviously an underdeveloped reading potential, already renders positive and most encouraging results. The main challenge, however, remains the breakthrough to education departments to initiate the official establishment of such developmental reading centres.

Another important challenge for the 70s is the establishment of a national board for developmental and remedial reading. The decade of the 60s saw only one national conference on reading (1967), followed by only a few scattered regional meetings but which never germinated to anything on a permanent national basis. In this way South Africa lacks coordination of effort and is deprived of the important stimulus of being internationally affiliated with the IRA.

Other challenges awaiting South Africa are the implementation of television in the fight against underdeveloped reading potential and what Eve Malmquist calls "the shame and scandal of illiteracy" (Second IRA World Congress on Reading, Copenhagen, 1968). Introducing the problem of illiteracy and developmental reading on radio is an important breakthrough. Further allowing this radio talk to coincide with literacy day or other appropriate occasions is important in the future. The decade ahead holds the promise of a rich harvest, following the spadework of the 60s.

Summary

Combat of the neglect of continued specialised guidance of reading development at the secondary school level, as the best investment in efficient scholarship, is considered the most important challenge for South Africa in the decade to come. Scientifically designed research findings from the 60s render statistically significant evidence of wholesale, unutilised developmental reading potential of secondary school

pupils. One of the main reasons for this stituation is the irresponsible attitude of blaming down the line and considering the reading development of a pupil as the task of the primary school, while nobody in particular takes the responsibility of scientifically founded guidance of the secondary pupil towards the fine art of reading as a study and cultural tool. During the 60s, important spadework was done (the foundation of the Mobil Reading Laboratory at Stellenbosch and a national conference on reading in Johannesburg in 1967 being the highlights). An important challenge for the future is the establishment of a national organisation for the advancement of reading at all levels and the follow up of important research findings of the 60s.

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Reading: An International Challenge

The decade ahead will be a period of unprecedented change and challenge. Change has been greater in the past ten years than in the previous 1,000 years. Many generations of change have been compressed into the span of ten years, so brief a period that it is scarcely a second on the clock face of history. So great is the acceleration of change that we can see no point of diminution in the future. And this change is as expansive as it is rapid. It affects all of us in the world: every countryside, hamlet, town, city, province, and nation is affected. Change is something we share in our entire world community.

The 70s roared in with an accelerated whirl of technological change which has potentialities of drastically modifying the whole world in which our present day children will be living; it may even modify worlds beyond our own. By the year 1980 man probably will be exploring several of the planets and perhaps using the moon as a laboratory for further flights.

Mammoth jet planes will flash through the air carrying 1,000 passengers at supersonic speed. Helicopters will leap across the Atlantic, and it is said that we may have buses and houses that fly. Automobiles may be streamlined, self-driving over vast freeways at a uniform speed set by law to ensure safe spacing. Meanwhile the driver may play cards with his seatmate or eat a lunch taken from a convenient refrigerated compartment in the dashboard of his car.

Storage of information will undergo phenomenal change. Even now the National Cash Register Company of the United States has perfected the art of microphotography to the point in which it is able to store on a single 4″ × 6″ film the entire contents of the Encyclopedia Britannica. I recently saw a little film 1″ × 2″ in size on which the entire St. James version of the Bible had been photographed. The storage of information in the future may be quite different from the large sets of encyclopedic volumes of the present, but reading will still be needed.

Homes made of paper will be available. One manufacturer now is selling a good-looking, modern house made of paper, which can be assembled in 15 hours and will last for 20 years even in the roughest weather.

The computer will increase in numbers and also in the varied and fantastic types of almost human services that it will perform. The growth of the computer industry has been phenomenal. In 1955, 244 were in use; in 1970, 53,500 were in use; in 1975, 100,000 will be needed.

It is said that there will soon be something called a "modern." A "modern" is one computer that talks to another computer over the telephone. We wish them luck in dialing the long series of numbers that computers use. Scientists are working on models that will develop their own intuition, design their own descendants, and make their own decisions.

Teaching and learning in the home will take on new directions. Some people are predicting that the school as such may eventually disappear, leaving the home as the basic learning unit.

Goodlad (*10*) says:

> It is quite conceivable that each community will have a learning center and that homes will contain electronic consoles connected to it. This learning center will provide not only a computer-controlled videotape, microfiche, and record library but also access to state and national educational television networks. It is even possible that advanced technology will return the family to center stage as the basic learning unit.

This may not happen by 1980 but Goodlad and several others think it may happen sometime in the future. There are even some evidences, which I shall mention later, of its existence at present.

And so we can expect innumerable and startling changes in the 70s, and reading will be no exception in this decade of changeability.

We are living in a global society. These changes will affect all of us, and reading is so intricately interwoven with the woof and warp of the society in which it exists that it becomes a part of the living fabric of life, which changes too, as crucial epochs in history emerge. Certainly, we at the present time are in the midst of the emergence of a crucial epoch and, as usual, reading instruction reflects our progress, our concerns, and our intuitive insights. In the midst of this emerging epoch, oportunities for improvement are at their apex. There are many events which are now etching their future designs on our world society which we can capitalize upon in improving reading instruction. Some have immediate implications; for others we must await further developments.

I should like to mention a few possible events, influences, and trends

which may serve as promising agents of change in improving reading, globally, in the 70s.

Concerns for the undernourished as they may affect reading

One of our worldwide concerns thrown into bold relief with this emerging epoch is a new solicitude for poverty peoples—poor people living in city slums, in developing countries, in overpopulated or barren sections of older nations. As one facet of this concern, hunger, including the malnutrition of children, has been investigated. The results have revealed some facts which are significant to us in the teaching of reading.

All would agree that intelligence and reading ability have a high correlation. Many studies have shown the effects of inadequate nourishment of the mother during pregnancy as a factor affecting the child's intelligence.

Scarr (*24*) sums up the results of these studies when she says, "From the day a poor child is conceived by his poorly nourished mother, he is probably unequal. His growth is likely to be slower; he is more likely to be assaulted by infections and prenatal complications; and he is all too likely to be born in a premature state, which exposes him to enormous risks of brain damage."

Innumerable researches (*2*) indicate the association of premature birth, weight, and decreased intelligence. A quotation from Hardy's study (*11*) is representative:

> One of the greatest risks of premature birth is at weight below four and a half pounds. It has been firmly established that low birth weight is associated with decreased intellectual performance in later childhood.

Protein is especially important to the developing brains of young children during their childhood days. Because protein foods are expensive, the poor have lower protein diets than advisable for their optimal growth. Several recent studies (*2*) made in Mexico, Guatemala, and the United States show that there is a correlation between low protein intake, intellectual development, and general dullness in the learning capacity of young children.

An extremely interesting study is underway at present in regard to the effect on a child of lack of protein in a mother's diet during pregnancy. Bacon F. Chow of Johns Hopkins University has found in his experiments that pregnant rats who do not get an adequate diet of suitable protein give birth to abnormal rat pups. The pups show inability to learn as young rats or adults. Chow has now started a control

experiment with human beings in 14 villages on an island of Taiwan where the people essentially have a nonprotein diet. Some of the pregnant women in these villages will be fed a supplementary diet rich in proteins; the control group will also be given a supplemental diet but one that is poor in proteins. The children of these groups of mothers will be checked over a period of three to five years to ascertain the effects of a protein-rich diet on the physical and intellectual development of their children. It is thought that the results will show marked learning improvement for the protein groups.

No doubt, if all of the children in the world and their mothers had all of the food that they need including an adequate supply of protein and other dietary essentials, our problem cases in teaching reading would be decreased tremendously. Our rapidly increasing sensitivity to the food problems of the poor the world over is promising. A great deal is already being done about this. We are doing many things in our country. I am sure you are doing many things in each of your countries. Anything that you can do to get your church, club, city, district, or government to do more will be effort well placed, and at the same time you will be indirectly improving reading ability and ability in all other branches of instruction.

Within your own school you can do a great deal in advising parents concerning their children's diet and in talking informally about it to preschool and early primary children.

In addition Havinghurst (*14*) suggests that in schools for the disadvantaged emphasis be put "on the study of nutrition at two levels of the school, the third or fourth grade level with simple and clear rules about diet and the ninth or tenth grade levels with science-based information about nutrition."

Biochemistry offers promise for improving learning and memory

Regardless of race, nationality, or location, we all have some children who have difficulty in learning to read. Possibly, later on in the 70s, in certain cases where learning is slow or memory is weak, the teacher can give a pill to a remedial reading case to improve his ability rather than spend long weary hours drilling him on phonics.

As part of the recent spurt of scientific activity, investigators have been experimenting in the field of biochemistry to see if drugs could be found which would improve memory and learning. Experiments in this field are promising.

Nicholas Plotinkoff has tested the drug Cylert on rats and discovered that it increased their learning capacity up to five times that of untreated rats and that this learning was permanent. James McGaugh also has experimented in giving memory-enhancing drugs to rats. He found that a treated rat remembered getting out of a maze better than an untreated rat. Several other studies of this type have been conducted.

Other investigators have attempted to transfer learning by injecting fluid or material from the brains of trained animals into the brains of untrained ones. The results suggest that learning can be transferred in this way, but many scientists are doubtful about this.

However, in the light of fast moving developments, drugs for improving learning and memory do seem to have promise of offering valuable help to normal learners as well as to slow learners and the mentally retarded. In the future they may be of assistance to certain students in each of these classifications who are having difficulty learning to read. Kresch (*16*) says:

> Both the biochemist and the teacher of the future will combine their skills and insights for the educational and intellectual development of the child. Tommy needs a bit more of an immediate memory stimulator; Jack could do with a chemical attention-span stretcher; Rachel needs an antichlorine-esterase to slow down her mental processes; Joan, some puromycin—she remembers too many details, and gets lost.

As for the challenge of the new drugs I will again quote from Kresch:

> To be sure, all our data thus far have come from the brains of rodents. But is anyone so certain that the chemistry of the brain of a rat (which, after all, is a fairly complex mammal) is so different from that of the brain of a human being, that he dare neglect this challenge—or even gamble—when the stakes are so high?

The readiness concept: need for revision

For many years the teaching of reading to very young children has been considered an undesirable practice. In Scotland and West Australia reading instruction begins at five. In East Australia, West Germany, France, the United States, and England, however, six years chronologically or six-and-one-half years mentally has been the accepted age. In the Scandinavian countries and in Russia reading is not introduced until the age of seven, and sometimes later.

Some people have been questioning rigid adherence to the later age criteria for some time. Eve Malmquist of Sweden has long advocated

greater flexibility in readiness. May Marshall of Australia deplored the theory that "Time was in charge of readiness" and expressed the belief that children who are ready for an early start in reading suffered no adverse effect when taught.

In the United States at the present time a new trend is emerging which threatens to upset the traditional readiness assumptions. I do not know to what extent this new philosophy has taken hold in other countries, although I have found a few evidences coming from England.

Two references quoted from the English journal *Educational Research* are as follows:

Lynn (*17*) describes a number of children with chronological ages of less than three and mental ages less than three and one-half successfully identifying words and letters. He concludes from cited sources and his own evidence that learning of words can readily be accomplished at a mental age of two and one-half to three and one-half, and probably earlier.

Sanderson (*23*) reviewed the literature on the subject, agreed with Lynn, and concluded that there was a need for a reexamination of the whole concept of reading readiness.

In the United States excitement in teaching reading to two-, three-, four-, and five-year-olds was first aroused by books such as *How To Teach Your Baby to Read* (*6*) in which age two was given as the best time to start; and Pine's *Revolution in Learning* (*21*) in which she says "From birth to six, children can learn more and more rapidly than at any other time in their lives. . . . We are wasting the capacities of millions of children by failing to stimulate them intellectually during their earliest years."

In the 1960s, investigators in the United States began conducting studies in regard to early reading. Among the resulting investigations were the important longitudinal studies by Durkin (*7*) with children who read before coming to school. In following these children through the grades she reported that even after six years of school instruction the early readers, on the whole, maintained their lead in achievement.

Another interesting result: previous to Durkin's studies it was thought by many that early instruction in reading would be harmful to the young child's eyes; that it would develop in him a distaste for reading; and that it would result in emotional difficulties. None of these effects resulted from the early reading of the subjects in Durkin's studies.

The books (*6, 21*) and studies (*7*) that I have mentioned and many other similar ones together with numerous personal accounts of young children who were early readers appear to be causing many people in

the United States to break away from the time-honored rule which states that we must wait until a child is six or six-and-one-half mentally before teaching him to read and are now accepting a philosophy which includes younger children—but not everyone I assure you, for it is a controversial issue. Large numbers of parents are teaching their young children to read in their homes; reading is taught in some nursery schools, and recently it is being quite commonly taught in kindergartens.

All of this has happened in the United States pretty much spontaneously and without working out any fundamental guidelines. The time is ripe for a complete reexamination and reworking of the reading-readiness concept. It would be of advantage to our present, troubled society if some children were taught to read early. The child who is curious about reading and who asks what words are at two-and-one-half should not be deprived of the information he seeks. On the other hand, irreparable damage might be done in an attempt to teach reading to some other two-and-one-half-year-old children. We need to recognize a much wider range of readiness levels for reading, extending perhaps from two years to eight with different readiness tests for different levels of maturity and with materials designed to develop weak skills and abilities in the readiness complex wherever we find them. Certainly we should no longer consider any one chronological age or any one mental age as *the* age to begin reading. Ripeness for reading should be a matter of individual qualifications. We could make a great contribution if we might have international cooperation in the 70s in revising the whole concept of reading readiness and in developing a new program of readiness tests and materials.

Methods in the future: which one?

The big moment for the improvement of reading instruction in this century began with the flight of Sputnik. All the world was then challenged with the supremacy of technology. This event was the spark which touched off a technological and informational explosion that has resulted in the greatest period of activity the world has ever known. Education has shared in this activity, and reading has been included.

One result of stepped-up activity in education was an outcropping of many new approaches to beginning reading. Authors and publishers hoped that their respective products would enable children to read better in a shorter time.

For generations, the world over, two basic methods had been used for beginning reading, either the global method or the synthetic method

in some one of its respective variations. The material of instruction had been a set of basal readers. Now a whole galaxy of new methods and materials issued forth: the linguistic approach, programed instruction, language experience method, words in color, initial teaching alphabet, and several others. Will some of these newer methods and materials replace the two basic methods of past worldwide usage? Will we settle down to one or two favorite new methods in the immediate years ahead?

In seeking clues to answer these questions let us turn to research. Recently in the United States a cooperative study was made, funded by the United States Office of Education, in which investigators used the newer methods in various combinations with basal readers in first grade in 27 locations in our country. During the first year of this series of studies, data were compiled from the 27 individual projects in which different methods and materials had been used, including basal, basal plus phonics, i.t.a., linguistic, language experience, and phonic linguistic (*1*). Following the first year of experimentation, 13 of the 27 projects were continued for another year to assess the relative effectiveness of these programs after two years of instruction (*8*).

The results of the first grade study indicated that code emphasis reading programs tended to produce better overall achievement for beginners than did meaning emphasis programs. The results of the second year study indicated the same thing, that early and relatively intensive teaching of sound-symbol correspondences appeared to be highly related to reading achievement at the end of second grade, also. This result was true of programs labeled i.t.a., linguistic, and phonic linguistic.

When the third grade is reached, however, we find a different situation. Six of the investigators (*9, 12, 13, 22, 25, 27*) of the original 27 projects followed their pupils through the third grade. These projects included basal readers, i.t.a., linguistic readers, diacritically marked readers, supplemental phonics, and phonic/linguistic readers. According to this projection of the USOE Cooperative Studies into the third grade, the code emphasis in beginning reading did not show superiority over other methods. There was no consistent advantage for any of the methods studied when pupils were followed through to the end of the third grade.

We find similar conclusions resulting from studies conducted in other countries. Morris (*19*) made a follow-up study in England of 98 "poor readers." She found a slight difference in favor of phonic methods at the end of infant school, the first three years; the next three years somewhat favored those whose introduction to reading had been the whole word method. The differences were not significant. She concluded, "The

teacher's competence, the children's intelligence, the classroom facilities were factors found to be more important influences on later reading success than the method used in the initial phases of reading instruction."

Müller (*20*) conducted a study to compare synthetic, whole word, and sentence methods using a sample of 587 second grade pupils in Wiesbaden and Frankfurt, Germany. He found that the synthetic method was superior to the sentence method at the end of the second year. At the end of the fourth year, however, there were no significant differences between the three groups.

And so it is that research supports the contention that in the long run the teacher, the children, the school, and other general factors are more important than the method or the material.

Before leaving this topic I would like to call your attention to a recent book (*26*) which sets up criteria for assessing reading approaches and then examines nine current approaches in terms of these criteria. Its purpose is to enable the teacher to select "one or more approaches which are particularly appropriate to her own beliefs and the needs of the children concerned." In my opinion the goal expressed is a very worthy one.

To answer the question I posed in regard to which method will reign in the 70s, I would like to say that research and philosophy at the present time would lead us to believe that many different methods will be used in the 70s and that many different ones should be used according to the learning styles of children, the teaching styles of teachers, and the school and environmental influences under which the children and teachers are working.

Reading and technology in the 70s

Now to discuss a revolution in teaching reading that overshadows all others discussed so far and one that may have far-reaching effects before the close of the 1970 decade—the technological revolution. Many people are predicting that all learning will be administered by technological devices and that we shall have no further use for books. I am sure this forecast will not happen by 1980, and, personally, I doubt if it will ever happen.

Our initial use of technology came several years ago when we began to experiment in teaching reading by radio and TV. I recall reading early accounts of the use of radio in teaching children in the outback of Australia, in a certain part of India, and on a remote Indian reservation in the United States.

As for TV, the most widespread and spectacular program produced in the United States was "Sesame Street." This was a preschool national program produced primarily as reading readiness preparation for disadvantaged nursery school children. The research, development, and operation cost was $8 million. It ran hourly each weekday morning for a 26-week pilot run and then was repeated in its entirety each weekday afternoon, with reruns on Saturdays. Because of the beauty of its coloring and animation of its characters, it received high praise from many. On the other hand, many specialists in early childhood education criticized it severely. They preferred that these young children be made acquainted with real life rather than with the artificiality of movieland fiction.

Other than the Sesame experiment, television is used most often at present in teaching speed reading by the lecture method.

Two interesting experiments have been reported in regard to teaching reading by TV to backward readers in Scotland and in Ireland. Chovil (*4*) writes of an experiment with third- and fourth-year backward readers in Scotland and Northern Ireland. Clark (*5*) reports on experiments with similar age groups in the Glasgow area. The TV lesson in each case consisted of preparation for reading a section of a story in the reader by showing pictures of characters and presenting vocabulary. The experimenters concluded that the presentations were beneficial.

In the United States the talking typewriter is receiving considerable attention. This device first attracted attention in 1962 when O. K. Moore startled laymen and educators alike by showing a motion picture in which three- and four-year-old children were using a talking typewriter in teaching themselves to read. Much discussion ensued pro and con, and such discussion is still underway.

The typewriter itself looks like an ordinary typewriter with a large keyboard. Above the typewriter there is a screen for visual presentation and also a microphone. There is a recorder inside the machine which is computer controlled. Both audio and visual responses are made through the use of slides and tapes.

The talking typewriter is under experimentation in several public schools where it is being used in teaching nursery school children and older remedial students. For directed teaching the machine is programed with coordinated visual and audio instructions. For example: when the letter *A* appears on display and is sounded by the speaker, the child can depress the *A* key only. None of the other keys will work for him. If the speaker asks the child to spell *cat*, he can depress only the correct letters in the correct order. None of the other letters on the keyboard will respond to his touch.

Reports from nursery schools using the typewriter indicate that chil-

dren learn to recognize the letters and their sounds and in some cases can type short stories dictated to them. Teachers report substantial gains for remedial classes, also.

The electronic teaching machine falls within the automated category and is used in teaching reading. There are several brands of electronic teaching machines which have recently appeared in the United States. All of them are vastly different from the original teaching machines with which B. F. Skinner stirred up excitement in the 1950s. The present electronic teaching machines used in the United States look something like a television screen in an open-faced box with accompanying equipment consisting of an audiovisual system conveyed by a screen and a speaker. Some have ear phones and a typewriter.

Materials used in the machines vary. Some companies prepare their own materials to use in their machines; others use a combination of their own materials and commercial materials.

A teaching machine called the Dorsett Machine is being used in the United States in a highly innovative situation in Texarkana. This situation has set a startling new trend in teaching remedial reading individually—that of a school contracting with industry to do the job.

Texarkana contracted with Dorsett Educational System to remove math and reading deficiencies of 150 to 400 seventh and twelfth grade students at least one grade level. The company receives $75 for each full grade level achieved during 18 hours of instruction. It uses its own teachers and paraprofessionals. The school does not participate in the instruction. The students are sent out of the school to a center prepared by the industry.

This is the first trial run in which industry takes over remedial reading and is paid on a commercial basis for results. Others will follow. If the first ventures are successful, we will probably hear much more about future similar contracts in the United States.

The latest teaching machine for reading that I have heard about is AVS-10 manufactured by Viewlex at Holbrook, New York. This is a portable, audiovisual unit about the size of an overnight case and can be rested on a desk. The device combines a color television system, long-playing record, and electronic video recording. In a recent experiment in Public School 81 in Brooklyn, New York, 30 students in grades three through six who were deficient in reading tutored themselves for three months. It is reported that they advanced their skills by nine months.

Now a word about the computer, the wizard of all automated devices. The computer is the most favored of the automatic devices used for instruction. I suspect that computers are used in the universities of many countries for instructional purposes. As one example I will mention the

University of Edinburgh where experimentation with computer programming has been in progress for six years (*18*). This university has just been given a grant for the study of computer-aided instruction with young children. This instruction, I suspect, will almost surely include reading.

Much experimentation in teaching children with computers has been conducted in the United States. While a single computer is very expensive, we are beginning to see practical possibilities in having one computer teach children over an area of several thousand miles in a large country or several thousand acres in a large city. For example: recently, students in eastern Kentucky had daily drill in elementary mathematics under the direction of a computer over 2,000 miles away in Stanford, California.

Some 2,450 elementary school pupils in New York City were able to pick up their telephones at home and perform a drill in arithmetic. Most of these pupils lived in poverty areas. They received the drill from the board of education's midtown computer center and answered by pressing buttons on a touchstone telephone hooked into the home phone.

I have given two examples of the use of the computer in teaching math. The computer is also under experimentation in the United States in teaching reading.

To teach reading to beginners at East Palo Alto, California, 16 terminals from one computer serve each of 16 children. Each child works at the end of his particular terminal. While all children work simultaneously, each one may be working on different material and progressing at his own rate. The child has an opportunity to make three different kinds of responses: on the picture screen with a light-projection pen, on the typewriter, or oral.

As for results, strong claims are made of high achievement with the use of the computer. Personally, I feel quite sure that good results could be obtained with the computer or any of these automated devices in recognizing whole words, phonic elements, prefixes and suffixes, generalizations concerning phonics and syllabication, and comprehension in so far as literal meanings go. But I question the competency of these devices for teaching interpretation and critical reading. Socratic dialogue and mental interaction of human beings are necessary in teaching deeper meanings in reading. I believe that we shall always need a skillful teacher to stimulate and guide the thinking processes in reading.

The function of reading in a troubled world

We are living in a troubled society. The problems which face our world are many: warring nations, poverty, pollution of air and water,

depletion of natural resources, population explosion, and others. These problems cannot be solved now or in the future by those who are in a state of ignorance. They can be solved only by an intelligent world citizenship, and reading is basic to such a citizenship. Information, knowledge, tolerance, understanding, sympathy—all will be necessary in meeting the challenge of the 70s. These qualities are most apt to spring into action if we keep before us a vision of the contribution which reading has to make in solving the problems of this troubled world.

I find it heartening to read some words penned by Oliver Wendell Holmes, Jr., just before World War I. His premonitions at that time were so accurate that his message is even more appropriate now than it was on the day that he wrote it. Holmes (*1*) wrote:

> If I am right, it will be a slow business for our people to reach rational views, assuming that we are allowed to work peaceably to that end. But as I grow older, I grow calm. If I feel what are perhaps an old man's apprehensions, that competition from new races will cut deeper than working men's disputes and will test whether we can hang together and fight; if I fear that we are running through the world's resources at a pace that we cannot keep, I do not lose my hopes. I do not pin my dreams for the future to my country or even to my race. I think it probable that civilization somehow will last as long as I care to look ahead. I think it is not improbable that man, like the grub that prepares a chamber for the winged thing it has never seen but is to be—that man may have cosmic destinies that he does not understand. And so beyond the vision of battling races and an impoverished earth, I catch a dreaming glimpse of peace.
>
> The other day my dream was pictured to my mind. It was evening, I was walking homeward on Pennsylvania Avenue near the Treasury, and as I looked beyond Sherman's Statue to the west the sky was aflame with streaks of crimson and scarlet from a setting sun. But, like the note of downfall in Wagner's opera, below the sky line there came from little globes the pallid discord of the electric lights. And I thought to myself the Gotterdammerung will end, and from those globes clustered like evil eggs will come the new masters of the sky. It is like the time in which we live. But then I remembered the faith that I partly have expressed, faith in a universe not measured by our fears, a universe that has thought and more than thought inside of it, and as I gazed, after the sunset and above the electric lights there were the stars.

I trust that we, like Holmes, can look ". . . beyond the vision of battling races and an impoverished earth," and that we too can ". . . catch a dreaming glimpse of peace." And I hope that we can hold this glimpse before us continuously as we teach reading. The past is prologue. Time

passes inexorably, but the future remains for us to shape. Let us lift the veil and envision the tremendous service that reading has to render in helping peoples the world over to enjoy the fruits of living together during the remainder of this decade and in all of the decades to come. And let us share this vision with those to whom we are teaching the precious skill of reading. If we do this, both we and they will be able to look above the crimson and scarlet streaks of sunset, beyond the globes clustered like evil eggs—and there we, too, shall see the stars.

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