DOCUMENT RESUME

ED 102 518 CS 001 640

AUTHOR McHugh, Walter J.
TITLE Do You Read Me? Different Approaches to Reading Instruction.
INSTITUTION Bay Region Instructional Television for Education, Redwood City, Calif.; Station KQED, San Francisco, Calif.
PUB DATE 74
NOTE 289p.; An inservice elementary education series of 15 30-minute programs
AVAILABLE FROM Field Services, National Center for School and College Television, Box A, Bloomington, Indiana 47401 (Write for cost of programs and preview materials)

EDRS PRICE MF-$0.76 HC-$14.59 PLUS POSTAGE
DESCRIPTORS *Educational Television; Elementary Education; Reading; *Reading Instruction; Reading Materials; *Reading Programs; Reading Skills; *Teaching Methods

ABSTRACT

The education television programs presented in this manual are designed to acquaint viewers and readers with the variety of reading methods and approaches which are receiving wide attention today. The series consists of 15 one-half hour programs, each of which is designed to accomplish the following objectives: to explain the philosophy and viewpoint of an approach, to acquaint teachers with the materials used in the approach, to have a master teacher demonstrate the approach, to discuss with the teachers why they might use a particular approach, to discuss and review with nationally known experts in the field of reading the pros and cons of each method or system to be studied, and to analyze and evaluate each approach fairly. The approaches and topics covered are: words in color, the Initial Teaching Alphabet, perceptual approaches, linguistic approaches, language experience, phonic supplements, individualized reading, programed instruction, language and reading readiness, enrichment and supplementary materials, and the basal reader. A materials index is also included. (WR)

different approaches to reading instruction

do you read me?

by walter j. mchugh

professor of education
california state college at hayward, hayward, california

prepared by

b.r.i.t.e. bay region instructional television for education 590 hamilton redwood city, california

for

kqed instructional television service 525 fourth st. san francisco, raymond l. smith, director

television production staff
joanne m. mock, producer-director

BRITE

Bay Region Instructional Television For Education

A curriculum development and coordination service for instructional television provided by the County Superintendents of Schools of the Bay Area counties.

Rock La Fleche	Alameda County
Floyd I. Marchus	Contra Costa County
John W. Taylor	Mendocino County
Floyd A. Schelby	Merced County
Edwin C. Coffin	Monterey County
Piercy C. Holliday	Napa County
William G. Cagney	San Benito County
Robert E. Jenkins	San Francisco County
William J. Watson	San Luis Obispo County
J. Russell Kent	San Mateo County
Glenn W. Hoffmann	Santa Clara County
Richard R. Fickel	Santa Cruz County
Fred G. McCombs	Solano County
DeForest S. Hamilton	Sonoma County
Robert E. Morrill	Executive Secretary

Institutional Representation

College of San Mateo
Channel 54-Santa Clara County
Valley Instructional Television Association

ACKNOWLEDGEMENT

This educational television series was made possible by many fine teachers, children, publishers and their consultants. Miss Ethel I. Mayer assisted me in the preparation, editing, research and proofreading of this manual. To her go my first and foremost thanks. My colleagues at California State College, Hayward, provided both the time and assistance for this endeavor for which I am very thankful. Among them are: Drs. Albert R. Lepore, Dean of the College; Jon Peters; Pauline Brown; Jane Hebler; Forrest Mayer; Myrtle McParland and Ruth Kearney Carlson who made suggestions for Chapter 12. My appreciation extends also to Mr. Harold Lawrence and Holsinger, Inc., Burlingame, California who provided the classroom furniture; Dr. Robert E. Morrill and the Bay Region Instructional Television for Education (BRITE) Committee for conceiving of and assisting in the development of the programs; Mrs. Lorraine Zeyen and Mrs. Shirley Carpenter who typed the manual; Mrs. Ethel M. Mayer who assisted in the proofreading; Mr. Pat Daughton for the calligraphy work; and Mr. John D. Maloney, Pacific High School, San Leandro, California School District for his valuable criticism and insight in the furtherance of this endeavor.

Special acknowledgement and deep appreciation go to Miss Joanne Mock, the producer-director of the series for her great patience, understanding, interest and high standards of educational television production; and the entire staff of KQED-TV, San Francisco, to whom I feel particularly indebted. The KQED staff always works behind the scenes and receives little or no acknowledgement for their unique contribution to the success of a television program. I want to thank them for their very helpful service to me.

Thanks are also due to the many guest discussants on this series of programs who gave freely of their time: Dr. Richard C. Atkinson, Professor of Psychology, Stanford University and Director of the Stanford-Brentwood CAI Project in Reading; Dr. John A. Downing, Institute of Education, University of London; Dr. Donald D. Durrell, Professor of Education, Boston University; Mrs. Frances DeWitt, Director of the DeWitt Reading Clinic, San Rafael, California; Mrs. Velma Clark, Consultant, Merced County School Department; Dr. Nila Banton Smith, Professor of Education, San Fernando Valley State College; Dr. Constance M. McCullough, Professor of Education, San Francisco State College; Dr. Paul Lawrence, Assistant Commissioner of Education, U.S. Office of Education, Department of Health, Education and Welfare; and Dr. Guy L. Bond, Professor Emeritus of Education and Psychology, University of Minnesota.

. . . to read this preface. "Do You Read Me?" is the result of the Bay Region Instructional Television for Education (BRITE) Language Arts Committee's deep concern over the conduct and content of reading programs in Northern California. Like much of the nation, this area has been subjected to various pressure groups, both in the professional ranks and from outside sources, advocating a particular approach to reading as the one, best or "innovative" approach for all children. It was the Committee's wish to present to teachers, pre-service students in teacher-training and the general public viewing audience, a forthright, honest and fair compilation of the many ways in which reading can and is taught. Two years went into the planning and execution of the series of television programs on different approaches to reading instruction. Two difficult tasks consumed much of the planning of the series. "Which of the multitude of approaches and materials would be shown?" The Committee selected those approaches and materials it felt were most widely used and constituted a variety of ways of teaching reading. Approaches and materials not shown, but of interest to teachers of reading, are described or referred to in this manual. Secondly, "Which teachers would be used and what would be their qualifications?" Again, the BRITE Committee assisted me. Each teacher on the series of programs is considered a master teacher in her school district, enthusiastic and well-trained in the method or approach she is using and demonstrating. In selecting the more than 25 teachers on the various programs, I personally visited over one-hundred teachers in their classrooms and attempted to select the very best teachers I could find.

The format of each program includes: (1) a discussion of the approach; the philosophy and background as well as the materials of the approach, (2) a teacher demonstrating that approach with the children in her classroom, (3) an interview with leading figures in the reading field, and (4) an attempt to evaluate each method using the same criteria for all approaches to show what the particular approach is and is not designed to do.

This manual will provide the reader with as much information as was possible to accumulate on each approach to reading instruction. Some chapters are more lengthy than others simply because more information or research is available. Casting all personal biases aside, I have attempted to present all methods fairly and impartially, neither showing favor nor disinterest in any one method. I believe that every method can and does work for some, but not all children; that each approach, but no one approach helps build a truly balanced reading program. As you read this manual and view the "Do You Read Me?" programs, I do hope you read me "loud and clear".

W.J.M.

TABLE OF CONTENTS

N.B. This is the recommended sequence of viewing, but the programs may be viewed in any desired order.

[1]This program was originally taped in color.

To Help You

These programs are designed to acquaint viewers and readers with the variety of reading methods and approaches which are receiving wide attention today. Researchers, publishers, and teachers are constantly striving to improve reading instruction in schools. Recent significant developments in the teaching of reading have multiplied in the last three years. New materials, programs and systems of instruction multiply almost weekly. Many of these approaches are strikingly different, however they all have the common goal of attempting to provide increased service to teaching all children how to read.

It is to this goal of increasing the quality of reading services to children that this series of programs and teacher's manual is directed.

Program Format

The series consists of fifteen one-half hour programs to acquaint those interested readers with some of the more widely used and most recently developed approaches to reading instruction. Each program is designed to accomplish the following objectives:

1. To explain the philosophy and viewpoint of an approach.
2. To acquaint teachers with the materials of the approach.
3. To have a master teacher demonstrate the approach with the children in her class.
4. To discuss with the teacher why she uses this particular approach and what she considers the outstanding features or special characteristics of the approach.
5. To discuss and review with nationally known experts in the field of reading both the pros and cons of each method or system to be studied.
6. To analyze and evaluate each approach fairly. To point out the particular advantages, research, special characteristics, safeguards and limitations to each approach. Special attention will be directed to what each approach <u>is</u> and <u>is not</u> designed to do.

Recommended Reading

1. Goodman, Kenneth S., and others. <u>Choosing Materials to Teach Reading</u>. Detroit, Michigan: Wayne State University Press, 1966.

It is recommended that you first read the information under the section entitled, A Point of View, then read the assigned chapters in the recommended reading section prior to viewing each program.

Here you will find selections which offer pros and cons to the material discussed in the manual and the text. These selections may also serve to stimulate discussion sessions.

A Point of View

This section is an attempt to briefly describe the approach and to give an overview.

From the Publisher's Material and Program

The information reported here describes the material and program of each publisher. This will help give you an idea of what the material is supposed to do. You will note that the address of the publisher is given so that you may write to obtain more detailed information.

To Talk Over With Your Colleagues

The questions included here are to help stimulate discussion sessions. Hopefully, these discussions will include your teaching colleagues and your principal.

References and Selected Bibliography

Included in this section are articles and books which may familiarize you with pertinent information and give greater depth and scope to your understanding of different approaches to reading instruction.

Bibliography

The bibliography at the end of this manual includes those works which could not be limited to any one particular chapter. There is a list of periodicals and the standard reference books in reading included.

the future of methods of evaluation

"america might well be decided in the classroom."

John F. Kennedy

Chapter I

METHODS OF EVALUATION

Recommended Reading

Austin, Mary C.; Bush, C. L.; and Huebner, Mildred H. Reading Evaluation: Appraisal Techniques for School and Classroom. New York: Ronald Press Co., 1961.

Goodman, Kenneth S., and others. Choosing Materials to Teach Reading. Detroit, Michigan: Wayne State University Press, 1966.

A Point of View

The value of any approach to reading instruction depends primarily on how the eyes of the beholder evaluate and analyze the material and, how it relates directly to the person's particular teaching situation and locale. In this chapter are presented: 1) Goals in Reading Instruction, to aid the reader in seeing the teaching of reading in a large setting; 2) Some Principles of Reading Instruction, to assist in assessing the value of any approach as it meets the needs of adaptive instruction to childrens' learning needs; and 3) Sample Evaluation Scales, which may serve as a base for constructing a similar instrument for an individual or group to use. An outline for evaluating a basal reader program is found in Chapter 14, Basal Readers.

The following goals aid the teacher in evaluating different approaches to reading instruction. Some purposes overlap others. This list could be greatly expanded to include many component skills and abilities, however, brevity may aid the teacher in focusing on major purposes.

GOALS IN READING INSTRUCTION

1. Helping Every Child Reach His Full Potential. This is perhaps the teacher's greatest challenge. To attempt to "keep her finger" on each child's strengths, weaknesses, interests, and progress is indeed a difficult but not impossible task. To understand and accept each individual's special psychological, social, mental, and physical make-up greatly aids the teacher in achieving this purpose.

2. Adapting Instruction to Individual Needs. Once the teacher understands and knows the child's strengths and weaknesses, her next main task is to plan an instructional program to meet the child's needs. This requires imaginative and critical planning. No one method or text will fit all children

and the more the teacher attempts to teach to individual differences, the greater the differences become. This is due in part, to the fact that children work at different levels of instruction within the same classroom. The problem becomes more complex when the teacher finds two children working at the same level of ability, but progressing at very widely dispersed rates of progress.

3. Continual Growth in Word Study. Word study involves many separate and distinctly different skills and skill components. It involves sharpening auditory and visual perceptions, word recognition, word analysis, building vocabulary, adding new concepts of word meanings or multi-meanings, the use of dictionary aids, teaching specialized vocabularies peculiar to a particular school subject, providing opportunities for children to use their new word study abilities in continued writing ability growth, and to a more increasingly used application of word study in reading to word study and use in spelling. Continued growth implies that this is a long range program, spanning not only the child's elementary school years, but that this growth should continue in adult years. Our language is continually growing and changing, necessitating a foundational skill the child will use throughout his life. Hardly a day goes by in our lives that we don't learn either a new word or a new meaning for a word.

4. Continual Growth in Comprehension. The child who reads without comprehension reads for nothing. He is just calling words. The child with poor comprehension has little desire to read as he gains little for much effort and time. There are many components or satellites to reading comprehension. Like word study, it involves the sequential development of sentences, to paragraphs, to larger selections. Comprehension is concerned also with the ability to remember sequential order of events in a paragraph or larger unit, to gain both the main idea and subordinate ideas presented in reading material. More complex and highly necessary for today's student is the comprehension skill of not only remembering what was read, but to be able to recall what was read--either orally telling what he read--or more difficult writing what he can remember.

5. Mastery in Oral Reading. In primary grades in particular, this is an all important skill. Oral reading gives the teacher an opportunity to see what growth the child has made in word skills--mainly recognition and analysis. If a child fails a word, she immediately realizes the need for special help for that child. Through oral reading the teacher recognizes the child who reads the material word by word, and the child who can't remember what he read. Both these types of reading difficulties are easily detected in oral reading and serve as an aid to the listening teacher in planning help to overcome these difficulties.

There are many opportunities for oral reading in the primary grades. In the intermediate grades there are many unlimited possibilities for teaching and enjoying material read orally. In too many classrooms these opportunities go unexplored. The adult reader still needs mastery in oral reading. He finds himself in many situations in which he must read orally, especially if he has introduced his small children to the delights of literature or if he takes part in religious, civic, or community affairs. Unfortunately, many fine adult silent readers are fearful of reading aloud. The skill of good oral reading should be continually developed through all the elementary grades, but perhaps ceases abruptly at the end of the primary grades for many children.

6. Continual Growth in Applied Reading and Study Skills to Other School Subjects. Many persons studying piano became fairly proficient players--before they were fourteen years old. Nothing in a bag of coaxing tricks would catch them on a piano stool today. Why? The skills they developed and labored over were soon lost--through lack of practice and use. Lack of certain reading and study skills are doomed to the same fate by many children. Once a skill is learned, it must be used, or it will rapidly be forgotten.

The student who is a good reader in reading, may be in serious difficulty in other school subjects if he has not been taught to apply the skills he has learned. This requires superior teaching on the part of the teacher. No packaged or carefully developed reading program can do this for the child. It is the teacher who must provide opportunities to utilize reading and study skills throughout the school day and year in all applicable subject areas.

As a child progresses in school, his reliance on reading and study skills becomes more critical. This need commences early in the student's schooling and grows continually through high school, college, and adult life.

The mature reader needs a variety of reading and study skills --each for a different purpose. Among these skills he must acquire are adjusting his rate of reading according to the material being read, use of reference materials, study type reading and skimming. He must also learn to read for critical and creative thinking--for evaluating what he has read, for making judgments, noting an author's purpose or bias, for detecting propoganda from fact.

As the reader matures, his need for skills increases. The more sophisticated the reader becomes, the more heavily he relies on proper use of these skills.

Three additional purposes of reading signify the relationship of acquired skills to the desired outcomes of successful reading instruction. Although the continual teaching of the

reading skills program is vital, to neglect the broader, satisfying and fulfilling purposes of reading would defeat the basic purposes of helping every child reach his full potential in reading.

7. Continual Expansion of Desirable Behavioral Changes. As the child grows, his diet of reading interests change and expand when enhanced by a balanced diet of all different types of reading material. The child who never gets more than a single text for all reading all year, or the child who reads only about archaeology all year both suffer from severe malnutrition. As the child progresses through the grades his interests change. Six and seven year olds' interests change rapidly. Whereas, the older a child gets, the more permanent his interests become. It is the teacher's task to provide the child with opportunities to broaden his interests rather than to find an interest and build on it alone. To broaden children's interest requires creative teacher planning. To accomplish this task, the teacher must give enthusiastic and enriching experiences to all curriculum areas and the child's in and out-of-school interests. The teacher who has no interest or liking for social studies, communicates this feeling to the child unknowingly. Congruently, the teacher who radiates enthusiasm, displays keen interest and excitement in learning and discovering new social studies concepts and knowledges, quickly implants the same spirit in the child. In many instances, a person's life-long interest in a particular field was initiated during his childhood by a teacher who initiated the zest for learning to that person.

   Another area of opportunity for the teacher to make desirable behavioral changes in children is broadening the child's attitudes, habits, and tastes. These three areas are richly influenced by the child's first encounters with reading, and continually augmented by successive teacher-directed provision for expanding desirable attitudes, habits, and tastes. Every teacher, at all grade levels should keep this desired goal paramount in her mind throughout the school year. This goal is somewhat all encompassing and is heavily influenced by all areas of the curriculum, particularly literature.

8. Motivating the Student to be a Highly Competent and Diversified Adult Reader. "Send me a man who reads", best presents the case for motivating a student to read. The adult who reads enjoys a much richer, fuller, and more exciting life than one who does not. The adult who reads derives many benefits. Reading increases his personal pleasure, aids him in job opportunity and advancement, provides him with opportunities to become a leader of his family and community as well as being an informed and responsible citizen and an important and contributing member in many different social settings.

Although this might seem an "up in the clouds" purpose of reading instruction, it is very real and necessary, one which every teacher can influence. Setting our sights high and striving for this very desirable goal for today's children is not only practical, it is probably very necessary for his future well being.

SOME PRINCIPLES OF READING INSTRUCTION

In the absence of knowledge, we operate largely on what we believe to be sound principles. All sciences operate on this premise. Reading, being a highly complex act, and children being highly complex and so very different from one another, compounds the problem of reading instruction considerably. The following principles are the basis for this guide. They are the author's present thinking, not complete, open to critical analysis, reflection, and discussion, and invite improvement. However, they will be referred to often in succeeding chapters.

ADAPTING INSTRUCTION TO CHILDREN'S LEARNING NEEDS

The only person in education who makes the difference between superior instruction and poor instruction is the classroom teacher. All other personnel in education contribute little to the classroom tasks the teacher faces. The following principles of reading instruction are divided into three categories: (A) The Differentiation of Instruction; (B) Effective and Efficient Learning; and (C) Enrichment of Learning Activities. Each of these areas contains principles which discuss the major learning needs of children.

A. Differentiation of Instruction

1. Provision for Different Levels of Ability

The wide range of levels of ability in reading present in any classroom are widely reported in professional literature. It is far easier to say they exist than to do something about them. For example, in an average third grade classroom the teacher can expect a range of reading abilities from 1.0 to 6.0. In the upper grades, the range is even greater. In a typical sixth grade classroom, the range may well spread from 2.0 to beyond 10.0. In each of these classrooms, there are one or more children reading at each of the different levels.

You, as the teacher, must provide each child with proper instruction in his particular level of achievement. If instruction is below his ability level he is unchallenged, often bored, restless, making little or no progress. Similarly, when the instruction is too difficult, the child stumbles over words, gets little understanding

from what he reads, is continually frustrated and confused.

No matter how hard we may try, these children cannot succeed in reading through mass, uniform instruction from the same reading text. Therefore, the first, prime task for the classroom teacher is to find the proper instructional level for the child and provide instruction at that level.

2. Provision for Different Rates of Progress

One of the most damaging burdens a child bears in school is waiting for others to finish their work. In many classrooms this amounts to wasting valuable time at properly spaced intervals. To overcome this weakness in school practice, the teacher must provide valuable tasks for the child that will either enrich his reading, or, particularly in practice and maintenance activities, allow the child to complete more than other children within the group can master. The progress rate of slow learners or low achievers is an equally important necessary adjustment the teacher must make.

Another facet of this problem is that two children may be correctly placed at the proper <u>level</u> of instruction, but both children are progressing at different <u>rates</u> of progress. This was clearly shown in a study when children were allowed to progress at their own rate in spelling, taking spelling tests, and moving on to the next lesson as soon as they had mastered the words, high achievers in spelling completed the text of the grade in the first three weeks of school. In this study, it was not unusual within one classroom to observe, in circulating about the room, each child studying a different lesson, each at his own rate of progress. In this same study, when each child was allowed to progress at his own rate of mastery in arithmetic, completing assignments and correcting his own work, wide ranges of pupil achievement resulted. High achievers in arithmetic completed from one to three years work in one school year.

Adjustments to differing rates of progress are much easier to accomplish in spelling and arithmetic than in reading. Adjustments to progress rates in reading involve provision for individual progress in many different skills and abilities. It is a more complex task, but has been greatly aided in the past few years with the introduction of self-directing and self-correcting skill building materials.

3. Provision for Special Weaknesses

Within any group, be it high or low, different types of pupil weaknesses will be noted. Two children, properly placed at the same instructional level may well require totally different teaching because of dissimilar needs. One child may need help with word study while the other requires specific instruction in improving his comprehension. No physician, in seeing thirty sick patients in the course of a day would give them all penicillin. No good teacher can give all of her low achievers the same medicine or instruction and expect positive results.

Therefore, as part of the teacher's total reading program, she must make provision to help children overcome weaknesses or difficulties. Methods to accomplish this outcome are given in succeeding chapters.

4. Provision for Independent Learning

Many classroom teaching tasks are most efficiently taught as whole class activities, while some are best done through large and small group instruction. Both types of class organization can enrich the reading program considerably. Equally important in the teacher's planning is to provide opportunities for pupil's independent learning. Few teachers feel that they must personally dispense all knowledge to their children. Yet, many teachers unconsciously monopolize the school day lecturing to the children. This same type teacher believes little learning takes place unless she is personally in command. The wise teacher believes that possibly more learning takes place when the initiative for learning is placed upon the pupil where it rightfully belongs--not on the teacher. It might be a little disconcerting to the teacher when all children are not on page seventy-eight and she knows exactly what everyone is doing. More learning probably takes place without the teacher, when individual children are practicing a skill they need additional work on, correcting their own work, independently reading an adventure story, outlining a special report to be given to the class, or organizing an experiment in science.

A well organized classroom where children have clear understanding of the amount of independence they have to pursue individual work, what types of individual learning assignments are possible, and expected end products are properly presented, can be a zestful and powerful classroom situation where learning takes place everywhere. In such a classroom children may be pursuing similar assignments or very diversified assignments, part of the class may be working with the teacher as a group, while the other part works independently.

B. Effective and Efficient Learning

1. Provision for Economical Use of Pupil Time

Although the school day does not get longer, certainly the curriculum does. The teacher today needs to seek ways of improving the use of pupil time. It is interesting to observe in many classrooms, teachers who are very busy and do not notice how many pupils are wasting time--waiting for some one else to finish, waiting for his "turn" in oral reading, or worse, counting raindrops as they hit the window, miles away from the teacher, dreaming wonderful dreams. This child clearly has no commitment to listen to the teacher lecture. He is passive and nothing is required of him except to display an outward sign and facial expression denoting undivided attention.

It is somewhat unfortunate, that if you spend a day observing the children in one classroom, not the teacher, you will be appalled at the amount of pupil time that is wasted. The teacher may not see this waste as she is busy. As a nation, we have devised all types of time saving machines and methods, but in education we are long overdue for research and try-out of new ventures to increase the amount of pupil learning per day. In part A of this chapter, differentiation of instruction, some means of increasing are noted. Other methods follow in succeeding chapters. The teacher must be constantly aware of this basic principle of reading instruction and be striving and seeking ways of increasing use of pupil time.

2. Provision for Material Suited to Specific Need

A reading consultant was invited by a first grade teacher to observe her teaching and suggest improvements. The consultant described the situation as follows -- It was January.

"The high group had just finished reading, with the teacher. They returned to their desks and the next group went to the reading table. As the high group started their seatwork, the room suddenly took on the appearance of a city editor's room in a large newspaper office. Papers were shuffled on every desk. Each pupil was trying to decide which of his five seatwork papers he'd do first. In the process, several children dropped all five sheets on the floor and laughed. This made me curious--so I went over to one little boy's desk to see what the children were to do with all that paper. On one paper the child was to color a clown any color he wanted, another was for coloring a large elephant, the third to write the numbers in squares from one to one hundred. The fourth assignment was to make a ball and color it blue. The

fifth paper was divided into four squares. In the squares was neatly printed See Bill, See Patsy, See Rover, See Kitty. The child was to draw a picture for each sentence.

"I wanted to tell this teacher that these children needed more brain work and less seatwork."

No doubt, the drudgery kept some busy--others busy getting into mischief. None of the assigned work was remotely related to the reading lesson. None of it fit a specific need. In January, after coloring since September, no bright boy who can read well is interested in "staying in the lines," or the command to "color every bit."

During the reading period, the children should be working on reading. The assignment should be closely related to the specific needs of the group or individual. If a reading group needs help in remembering the sequence of a story, this is the type of practice they should get. It takes a skillful teacher time to plan meaningful independent activities for children to work on. Teacher skill is needed in providing all reading material in the reading program, including text, practice material, and presentations by the teacher.

3. Provision for Maximum Pupil-Group Involvement

Active participation by pupils in reading activities makes for greater motivation and reward in learning. When pupils play passive roles in reading instruction, much less learning takes place.

Small group activities such as discussions, planning sessions, sharing information and reading to each other, all lend themselves to making more efficient use of pupil time. Another excellent way to achieve maximum pupil-group involvement is by using every-pupil response techniques. An example to illustrate this technique: Give each pupil two small cards. On one is written the word "Yes", on the other, the word "No." Every time the teacher asks a question every pupil responds. His turn isn't "every Friday," it's every minute, every day, when this activity is utilized during the reading period.

Effective learning takes place when all children in a group are actively engaged in learning. This cannot be achieved through laborious "take your turn" recitations. A fourth grade girl was asked by her mother if she had oral reading in school. The girl nonchalantly replied "Oh, yes, my turn comes every Friday, but if someone is absent, my turn comes on Thursday."

4. Provision for Intensified and Continual Practice

This principle of reading instruction is relatively simple to initiate and maintain in any classroom. A sixth grade boy has difficulty with the skill of finding the main idea. This could be due to insufficient practice and drill when the skill was first presented to the boy. Possibly, the skill was not presented in a series of daily practices, but in a spiral-type of organization. In spiral teaching of a skill, the lessons are presented over a long period of time--perhaps even a year. During the year, each lesson gradually gets more difficult. The lesson in finding the main idea may be presented once a month. It is incorporated in a total skills program, with many other skills also dispersed throughout the text or workbook material in the same spiral format. This boy needs help--and much practice--NOW.

The teacher plans a program for him. She gives him daily lessons in finding the main idea. She gathers her material from one or several sources. If she uses workbooks, she assigns only those pages on which this skill is developed. Thus she provides a maximum amount of practice to overcome the boy's difficulty. The instruction on this skill is intensified in that it allows for systematic, regular practice and maintenance. It is continual, in that not occasional teaching, but rather, daily or almost daily instruction is given.

This type of instruction has been employed in reading clinics for many years, especially when individual tutoring is given. New materials are now available for regular classroom use and packaged for intensified and continual instruction to improve a particular skill.

Teachers can use the intensified and continual practice principle with individuals and both small and large groups --depending on pupil needs.

5. Provision for Assessment and Re-Assessment

Careful appraisals of student needs and progress is essential to all reading programs. Two important considerations in relation to appraisals are (1) finding out where the student now is and (2) periodic checks to see how he is progressing and the effectiveness of the teaching program. Finding out the present level of achievement and analyzing student special weaknesses greatly aids the planning of a good reading program. Teacher-made informal tests, standardized tests and teacher observation and opinion are all useful in assessing pupil needs. Equally important is the teacher's reassessment after a planned instructional program is operative. This is one of the most important of all principles. Testing doesn't help

anyone. It is only through wise use of the test results and periodic check of progress of desired goals that superior teaching can be achieved.

C. Enrichment of Learning Activities

1. Provision for Heightened Understanding

There are few more pleasing rewards for a teacher than the sudden change of expression that appears on a child's face when he learns something new. He is amazed, pleased, and proud of himself. Witnessing this occurrence is one of the true delights of teaching. All teaching tasks in reading should lead to heightened understanding. The emphasis the teacher places on this principle of reading instruction constitutes the difference between a dull, spiritless, mechanical, tedious classroom atmosphere and an inspiring, active, highly motivated and enriched atmosphere for learning.

An example of two fifth grade teachers illustrates the power in stimulating understanding. In one fifth grade, a group of children read and then memorize the preamble to the Declaration of Independence, in preparation for a written test. In the other classroom, a group of children read the same material. They discuss it at length, they ask questions, the teacher asks them questions. Meanings, purposes, background and heightened understanding are created. This teacher has added breadth, depth, significance and meaning to the learning task. She has also brought out an appreciation for the great men and ideas that made this document so important to us, and now so important to these children.

In striving to teach for heightened understanding, the teacher should ask herself, "Why is that important? How can I make it important to my children?" Placing much emphasis on this important principle makes for richly satisfying teaching and learning.

2. Provision for Thinking and Reaction

In order to remember something, you have to think about it. The more you think about it, the more you remember it. Giving children many opportunities to think about what they have read, and then to react and evaluate what they have read--is one of the most neglected of all sound principles of reading instruction. If children read for only shallow or short-sighted goals, without thinking and evaluating what they read, we could easily produce a society that believes everything it reads, with little responsibility to think or evaluate what it has read.

The school day is full of situations and activities in which the teacher has many opportunities to provide for thinking and reaction, not only during the reading period, but anytime, in any subject, when the child reads.

3. Provision for Immediate Use

Concepts and understandings that a pupil can relate and use immediately have far greater permanancy than concepts and understandings that the student has no immediate need of knowing. The adage "Learn to read, then read to learn" is an important reading principle for the teacher to remember. Once the teacher has taught children to outline, her next necessary step is to plan activities in which the student puts this new skill to work. Skills that are not practiced are soon forgotten. The principle of applying new knowledges to immediate use is not limited to skills alone, they encompass reading in a larger setting. The students' thinking and reaction ability can be put to immediate use in most areas of the curriculum. When we teach children reading skills that are related to special subjects--such as reading maps, charts, and graphs--little enthusiasm is generated, and much of the motivation is lost unless the teacher plans activities in these special subjects to use and maintain the skills, concepts, and understandings recently taught.

4. Provision for Desirable Behavioral Changes

Throughout the school day there are many occasions when the teacher can capitalize on helping to broaden children's interests, attitudes, habits, and tastes. These desirable behavioral changes may be for personal or social advancement. They can be achieved, not only during the reading period, but in reading, thinking, and discussing material and ideas presented in all school subjects. Desirable behavioral changes can come about through individual reading assignments, work and reporting projects, making summaries, reading good literature and having good literature read to them.

Bringing about these changes is a slow, gradual process that is very difficult for a teacher to evaluate. The teacher should be constantly attempting to bring about desirable changes through her every day teaching, her long range plans and by her enthusiasm and interest.

C. The Teacher Sees Reading as Part of the Language Arts Picture

Reading, listening, speaking and writing are commonly called the language arts in the elementary school. Reading is only one of the language arts and cannot be totally separated as an isolated subject. In many aspects, it has to be taught in

a close relationship with all the language arts--including literature and handwriting.

First to be developed is the child's listening ability. Children with poor listening habits find it difficult to pay attention and follow directions in school. The second acquired language art is speaking. More emphasis has been placed on the teaching of speaking throughout all the elementary grades as a result of increased efforts to teach standard English to many children in the different areas of the country, where their language facility, local or provincial speech, is non-standard. Many other children who come to school with little or no knowledge of English are receiving increased instruction and opportunity to speak English. Children with non-standard English find the teacher's directions difficult, have serious problems trying to learn to read "talk that is somewhat foreign to them."

Reading is the third language art that is developed and writing the last, but both of these are usually taught in kindergarten and/or first grade. A child's desire to write (at about age three) usually comes long before his desire to read. In many newer reading programs, these two abilities are being developed concurrently.

Reading is to the language arts what one tire on an automobile is to the other three. Reading is as highly dependent on the acquisition of abilities and skills in the related language arts just as one tire is virtually useless without the other three.

The language arts are very dependent upon each other. Many of the tasks in school that a child performs daily involve reading; however, the end product of his reading is usually written, or spoken. Difficulty in one area of the language arts can seriously affect the child's ability to use the other three areas. It is wise for the teacher to look at the larger picture, the total language arts program, in adapting her reading instruction to different abilities, and in planning a balanced language arts program for her children.

BASIC CONSIDERATIONS FOR EVALUATION

Thousands of worthwhile research studies of reading have been published in the United States. The subtleties of the reading process require detailed analysis and cannot be summarized in a brief statement. The reading act is a highly rewarding but complex process. When children read they must (1) see words clearly; (2) have experiences which enable them to understand the ideas expressed in printed or written form; (3) go beyond the literal meaning of the printed words and sense new relationships

of ideas; and (4) be able to put reading to a variety of uses. The act of reading requires that these processes occur simultaneously, thereby emphasizing the fact that reading is a complex process with many facets.

Since an efficient and effective reader uses a wide range of skills, no one device can be used to reach across this range; there is no single best way of learning to read and, therefore, no single best way of teaching children to read. It is recognized that children vary in learning styles; therefore, provision must be made for materials to be used with those who learn best through the visual sense; those who learn best through the auditory sense; those who learn best through the tactile-kinesthetic sense; and those who must use all sense modalities.

Experienced teachers of reading use all the tools and techniques available at the time for using them. It is not possible, therefore, to say there is the one method of teaching reading because the effective teaching of reading assembles, embodies and uses the best of research, of professional theory, of experience, and of practical common sense.

The initial stages of developing a background and readiness for the first reading experience precedes the child's entrance to school. The population of California schools is composed of children from various cultural and socioeconomic backgrounds. Provision must be made to supply materials that will aid the teachers in providing experiences for children that will promote language growth and develop a readiness for reading and that will enable teachers to recognize and utilize effectively the learning styles of children.

The reading program for all pupils must build positive attitudes, develop efficient reading skills, and develop lifelong habits of reading critically and creatively.

There is need for a basic body of materials that is developed to demonstrate a clear scope and sequence of all reading skills. These materials must bridge cultures and divergent socioeconomic segments of the population. They must be developed to provide for the wide span of abilities of children at any grade level of the school. Provision must be made and clear direction given to the teacher for the early detection of reading disabilities and their diagnosis and correction. Evaluation measures of specific increments of reading progress should be built into every reading program.

Balance in the reading program is achieved only when careful guidance is provided for instruction in all of the skills areas: auditory skills, word recognition skills, vocabulary skills, comprehension skills, study skills, and recreational reading.. The content of the materials used for skills develop-

ment should reflect the language patterns and experience of children and youth and also should provide for extension of vocabulary, for understanding and communication of ideas in all content areas, for development of critical reading skills and literary appreciation, and for application of reading for personal and vocational growth.

Teachers need to be well trained and skilled in using many different approaches and techniques. They need a great variety of basic and supplementary instructional materials and should have access to them at all times.

In the light of research and experience, the best materials available must be selected to enable teachers to provide a modern reading program which will elevate the literacy level of children and youth. The following criteria for California adoptions may serve as a model.

General Criteria for Basic and Supplementary Materials in Reading, Kindergarten and Grades One Through Eight.*

I. Nature and Quality of Materials. The nature and quality of the materials shall:

A. Be designed to provide many opportunities for the use of oral language related to pupils' experiences and to foster the development of interests, attitudes, knowledge, and skills conducive to the continuing development of reading abilities.

B. Be specifically designed to provide experiences that develop and refine auditory discrimination, visual perception, motorsensory skills, perception of spatial relationships, and oral language facility.

C. Include provision for experiences conducive to the development of pupils' thinking, listening, speaking, reading, writing, and spelling.

D. Extend and enrich vocabulary and sentence development and dimensions of meaning and stimulate creative oral and written expression.

E. Contain various kinds of materials that may be manipulative, consumable, or nonconsumable so that teachers may use a variety of approaches to the teaching of reading.

---

*Adopted by the California State Curriculum Commission on January 19, 1967, and approved by the State Board of Education on February 10, 1967.

F. Develop positive attitudes toward all races, cultures, and creeds.

G. Supply a wide variety of basic and supplementary materials that are specifically designed to meet the needs of children from lower socioeconomic levels, culturally deprived backgrounds, and non-English speaking backgrounds.

H. Provide for a wide range of abilities and reading achievement which reflect the maturity and interests of pupils in the various grades.

I. Include diagnostic materials helpful in determining levels of reading ability and readiness for continuing progress, and provide consumable materials designed to extend and reinforce reading experience and allow flexibility of use.

J. Be well written and possess style and imaginative quality.

K. Contain lessons which help pupils develop an understanding of organization of language, signals within language, and thinking involved in the use of language.

L. Acquaint pupils with their rich literary heritage from America and from other countries of the world.

II. <u>Function of Materials</u>. Provision shall be made for the development of:

A. Independent word-attack skills (including phonics) by including materials specifically designed for this purpose, with all those needed introduced in the first grade. These materials will provide for the introduction of sounds and their relationship to their symbols early in the child's school experience. The materials shall provide for the continued development and maintenance of these skills throughout the grades.

B. Auditory and visual perception skills.

C. Listening-speaking skills.

D. Reading comprehension, including the development of ability to compare and contrast, to summarize, to order events sequentially, to sense cause-and-effect relationships, and to predict outcomes.

E. Concepts through oral language experiences.

F. Vocabulary growth, including the development of word meanings and of word recognition techniques and concepts of linguistics, including varieties of pronunciation.

G. Oral reading: reading for specific purposes, using suitable selections, including choric verse; and reading appropriate selections for dramatization.

H. Knowledge, appreciation, and enjoyment of literature and an understanding of the variety of literary forms.

I. Analytical reading through:

1. Getting central thought or general idea.
2. Evaluating, comparing, inferring, drawing conclusions.
3. Summarizing, organizing, outlining.
4. Following directions.
5. Reading for specific information.
6. Interpreting attitudes, various expressions, and humor.
7. Determining cause and effect.
8. Making comparisons and contrasts.
9. Following sequence.
10. Making predictions.

J. Location of materials through:

1. Skimming for particular information or details.
2. Using titles, chapter or section headings, and paragraph headings.
3. Using table of contents, indexes, glossaries, bibliographies, and appendices.
4. Using dictionaries.
5. Using encyclopedias.
6. Using graphs, diagrams, charts, maps, and tables.

K. Appreciation of the cadence and musical quality of language.

III. Content of Material. The materials shall:

A. Be based upon vocabulary and sentence patterns representative of the nature and variety in the language.

B. Include stories based upon children's interests that have comprehensible plot structures.

C. Include pictures that will extend concepts and opportunities for the use of language.

D. Make provision for extending and enriching vocabularies, including introduction and maintenance of new words in a meaningful context.

E. Contain lessons specifically designed for a sequential development of skills and concepts and make provision for their maintenance.

F. Provide stories containing action, humor, elements of surprise, and adventure.

G. Foster the development of high ideals, good character, and spiritual values.

H. Be helpful in developing an appreciation of the cultures of other people as well as their contributions to American culture.

I. Make provision for materials including appropriate stories from children's literature and classics and materials from content fields.

J. Introduce study skills and provide for their transfer to the content fields.

K. Provide materials representing a variety of literary and expository styles and forms, including selections from fiction, myths, fables, epics, legends, biography, poetry, plays, essays, short stories, and novels.

L. Provide for specialized materials appropriate for teaching reading to native speakers of other languages.

M. Include selections from the classics and modern literature.

IV. Organization of Materials. The materials shall show evidence of having been carefully planned and developed in accordance with the best procedures of instruction. They shall exhibit a logical sequence in the development of reading skills and in the presentation of the content and shall make provision for:

A. Review and extension of reading skills.

B. Self-teaching.

C. Opportunities for extension of experiences, language skills, and concepts.

D. Good character and plot development.

V. Illustrations. Illustrations shall contribute to the learning experiences and artistic enjoyment of children.

A. Pictures that are related to the content of the book shall be placed in close proximity to the particular parts to which they relate.

B. Illustrations shall stimulate discussion relative to children's experiences which will lead to the use of the vocabulary to be read.

C. Illustrations shall be meaningful, interesting, and accurate and shall meet high artistic standards.

D. Various socioeconomic, ethnic, and racial groups of American children should be represented.

VI. Format. Format should be acceptable in that:

A. Materials are of appropriate size.

B. Illustrations are simple, clear, and of high quality.

C. Type is clear, readable, and appropriate to the level for which intended.

D. No designation of grade is used, but a level or sequence may be indicated.

E. Bindings are durable.

F. Paper is of good quality.

VII. Instructional Aids. A concise teachers edition or teachers manual shall accompany each basic book. It shall suggest procedures and activities for both teachers and pupils. Included shall be:

A. Activities and procedures for both pupil and teacher, including suggestions for:

1. Introducing new words in context.
2. Developing ability to analyze words through the use of phonetic analysis and structural analysis techniques.
3. Developing word meanings.
4. Providing follow-up work to strengthen skills previously taught.
5. Providing a wide variety of exercises for evaluating mastery and growth in the various skills and in the development of vocabulary.
6. Providing enrichment activities related to the reading lessons.
7. Helping teachers to provide for the ability range within the group.

B. Short, usable synopses of stories to aid in planning the teaching objectives.

C. A paged index of the skills taught.

D. A well-organized table of contents with page references to authors and story titles.

E. An accessible and usable glossary presenting phonetic spelling and defining accurately various meanings of words.

F. A functional pronunciation key.

G. References to other books and poems for children to read, with comments upon such books and poems.

H. Materials for the assessment of skills and suggestions for remedial instruction.

1. Systematic presentation of materials for the assessment of reading behaviors and the related general language of the pupils.
2. Materials for periodic diagnosis of pupils' abilities and achievements.
3. Suggestions for strengthening specific areas of weakness.
4. Diagnostic measures for subskills and for readiness, visual perception, auditory discrimination, vocabulary, and comprehension.

I. Specific suggestions for providing for cultural and ethnic differences among pupils.

J. Examples of selections to be read aloud by the teacher.

K. A list of recordings for listening.

L. Specific suggestions for taping materials to extend experiences.

M. Suggestions concerning pictures, films, filmstrips, recordings, and other materials useful in supplementing the content included in basic texts.

N. Indication that the materials have been adequately field-tested.

Specific Criteria for Evaluating Basic and Supplementary Material in Reading for Kindergarten and Primary Grades

I. Nature and Quality of Materials

A. Readiness Materials. The nature and quality of the materials shall be such that they will:

1. Specifically lead to experiences in language development.
2. Provide a variety of materials so that a proper balance of varied types of experiences will be achieved.

3. Provide for modes of handling that meet the individual needs of children.

B. Primary Materials. The nature and quality of the materials shall:

1. Provide for tactile-kinesthetic experiences.
2. Provide basic materials for at least ten sequential levels.

II. Function of Materials. Provision shall be made for the adequate development of:

A. Vocabulary growth including development of word meanings and word recognition techniques--phonetic analysis, structural analysis, context clues, and configuration clues.

B. Pupils' expectations of getting meaning from reading and finding satisfaction in the reading process.

C. The basic skills, developed sequentially according to the varied abilities of children and the appropriateness of the materials, and including fluency, correct phrasing, and good comprehension of material read.

III. Content of Materials. The content of the materials shall include these types:

A. Picture materials--alphabet books and materials that provide for pupil involvement.

B. Nursery rhymes; poetry; fanciful, imaginative, fun, and folk materials--Mother Goose, fairy tales, folk tales, fables, myths and legends, and animal stories.

C. Information materials--history, geography, science, everyday happenings, authors, illustrators, holidays, and biographies.

IV. Instructional Aids. The instructional aids shall include:

A. A concise teachers' edition or teachers' manual to accompany each book in the series; it shall contain suggested procedures and activities for both teachers and pupils. (It shall include a systematic plan for developing word meanings, comprehension skills, and word recognition skills such as phonetic analysis, structural analysis, picture clues, configurational clues, and context clues.)

B. A paged list of the new words developed in each reader to be accompanied by a statement that this is not a basic vocabulary list but should be supplemented.

Specific Criteria for Evaluation of Basic and Supplementary Materials in Reading for Intermediate Grades

I. Nature and Quality of Materials. The nature and quality of the materials shall:

A. Show a relationship to activities in earlier grades and clearly indicate relationship to activities at subsequent levels.

B. Provide materials for tactile-kinesthetic experiences for pupils who are slow in maturing or who have other problems.

C. Provide basic materials for six to nine sequential levels in these grades. These levels will have no grade designation.

II. Function of Materials. Provision shall be made for the adequate development of:

A. The basic skills, expanded gradually according to the varied abilities of children and the appropriateness of the materials, and including fluency, correct phrasing, and good comprehension of material read.

B. A wide range of abilities and reading achievement levels which reflect the maturity and interests of children in the intermediate grades.

C. Increased rate of comprehension and identification of purposes of reading and learning to adjust rate and style accordingly.

III. Content of Materials. The materials shall include selections from classical and contemporary literature of the following types:

A. Fiction: stories about animals, today and long ago; far away places; space and science fiction; personification of animals, objects, and machines; historical fiction.

B. Other materials: myths, fables, epics, legends, folk tales; biography; ballads; short stories; adventure stories.

IV. Instructional Aids. The teachers' edition of, or teachers' manual to accompany, each reader should include a paged list of new words developed in that reader to be accompanied by a statement that this is not a basic vocabulary list but should be supplemented.

OAKLAND PUBLIC SCHOOLS
Office of
Director of Elementary School Education

Checklist for Evaluating Reading and Literature Textbooks

Publisher_____ Series Title _____

Title_____ Author_____ Grade_____

	Yes	No	Not applicable	Outstanding	Good	Unsatisfactory
1. Authors						
a. Include experts in reading research?						
b. Classroom teachers?						
c. Writers for children?						
Comments:						
2. Philosophy						
a. Agree to "no one best way" to teach reading?						
b. Belief in a balance program?						
Comments:						
3. Physical Aspects						
a. Books and materials of appropriate size?						
b. Is type clear?						
c. Grade designations avoided?						
d. Is binding sturdy?						
e. Is paper of good quality?						

	Yes	No	Not applicable	Outstanding	Good	Unsatisfactory
f. Illustrations						
(1) Proximate to text reference?						
(2) Stimulate discussion?						
(3) High art standards?						
(4) Multi-ethnic?						
Comments:						
4. Manuals or Teacher's Editions						
a. One manual or TE per reader?						
b. Activities to introduce new words?						
c. Paged list of new words (but with note to effect this list needs supplementing)						
d. Suggestions for word-attack techniques?						
e. Review of previous skills?						
f. Synopses of stories for teacher convenience?						
g. Suggestions for meeting ranges of ability?						
h. Index of skills?						
i. Suggestions for enrichment activities?						
j. Table of contents?						
k. Glossary?						
l. Pronunciation key?						
m. Recommended other books and poems, etc.?						
n. Provision for assessment and diagnosis?						
o. Suggestions for meeting cultural diversity?						
p. Suggestions for read-aloud activities?						
q. Suggestions for audio-visual matters?						
Comments:						

	Unsatisfactory	Good	Outstanding	Not applicable	No	Yes
5. Readiness						
a. Stress readiness at all levels?						
b. At least 10 sequential levels in primary?						
c. Six to 9 sequential levels in intermediate?						
d. Some tactile-kinesthetic experiences?						
Comments:						
6. Skills Program						
a. Word-attack skills						
(1) Integrated phonics program?						
(2) Structural analysis?						
(3) Context clues?						
(4) Picture clues?						
b. Vocabulary growth						
(1) Planned introduction of new words?						
(2) Adequate repetition of new words?						
(3) Development of multiple meanings?						
c. Comprehension skills						
(1) Literal recall and understanding?						
(2) Analytical comprehension?						
(3) "Reading between the lines"?						
d. Study skills						
(1) Help with "locating" skills (skimming, using titles, headings, etc.)						
(2) Help with dictionaries, encyclopedias, etc.?						
(3) Help with library skills?						
(4) Help with charts, maps, graphs, etc.?						
(5) Help with content areas, e.g., math?						
e. Oral reading skills						
(1) Oral reading for specific purposes?						
(2) Verse choir, dramatizations, etc.?						

	Yes	No	Not applicable	Outstanding	Good	Unsatisfactory
6. f. Oral language activities						
(1) Encourage much oral expression?						
(2) Based on pupils' experiences?						
Comments:						
7. Literary Quality						
a. Style?						
b. Imaginative?						
c. Variety of stories, of action, humor, surprise, adventure?						
d. Both "classics" and modern children's literature?						
Comments:						
8. Organization						
a. Logical sequence of skills?						
b. Enough review provided?						
c. Self-teaching activities suggested?						
Comments:						
9. Instructional Devices						
a. Are charts, cards, filmstrips, etc. available?						
b. Are they practical in the classroom?						
c. Are good workbooks available?						
d. Are instructional tests available?						
Comments:						

	Yes	No	Not applicable	Outstanding	Good	Unsatisfactory
10. Range of abilities						
a. Provision for a range of abilities in classroom?						
b. Diagnostic materials to determine ability levels?						
Comments:						
11. Linguistics						
a. Recognize English as a word-order language?						
b. Attention to grapheme-phoneme correspondences?						
c. Importance of intonation to meaning?						
Comments:						
12. Cultural Diversity						
a. Is content multi-ethnic?						
b. Promotion of positive attitudes?						
c. Other lands and peoples?						
d. Suggestions for teaching English as second language?						
e. Materials specifically designed to help low pupils?						
Comments:						

General Comments:

RECOMMENDATIONS: ___ Eliminate ___ Retain for final evaluation

Signatures of evaluators: _____

To Talk Over With Your Colleagues . . .

1. What steps do you consider important in reviewing a new program before initiating any new approach to reading in your class at school?

2. In what ways will future developments and refinements in individualized instruction make teaching more difficult?

3. Your school is interested in adopting a new approach or program of reading instruction. What would be, in your opinion, the ten most important criteria to be considered in initiating and conducting the new program?

4. List the advantages and disadvantages of a new approach you may consider using, as it has pertinence to you, your particular children and the total school setting.

REFERENCES AND SELECTED BIBLIOGRAPHY

*1. Austin, Mary C.; Bush, C. L.; and Huebner, Mildred H. Reading Evaluation: Appraisal Techniques for School and Classroom. New York: Ronald Press Co., 1961.

2. Austin, Mary C., and Huebner, Mildred H. "Evaluating Progress in Reading through Informal Procedures." Reading Teacher 15: 338-343; March 1962.

3. Bond, Guy L. "Standards for Evaluating First-grade Programs." Perspectives in Reading. No. 1. (Edited by James F. Kerfoot.) Newark, Delaware: International Reading Association, 1965.

4. Chall, Jeanne S. Learning to Read: The Great Debate. New York: McGraw-Hill Company, 1967.

5. Daniel, John Emerson. "The Effectiveness of Various Procedures in Reading Level Placement." Elementary English 39: 590, 595-600; October 1962.

*6. Goodman, Kenneth S., and others. Choosing Materials to Teach Reading. Detroit, Michigan: Wayne State University Press, 1966.

7. Lennon, Roger T. "What Can Be Measured?" Reading Teacher 15: 326-337; March 1962.

8. Rauch, Sidney J. "A Checklist for the Evaluation of Reading Programs." Reading Teacher 21: 519-522; March 1968.

* Also found under Recommended Reading.

" we know far more about changing the tools than we know about changing the workman."

the automation explosion

edgar dale

2

Chapter 2

THE AUTOMATION EXPLOSION

Recommended Reading

Atkinson, Richard C. "Instruction in Initial Reading Under Computer Control: the Stanford Project." Reading Research Quarterly 3:3 418-420; Spring 1968.

Glaser, Robert. editor. Teaching Machines and Programed Learning, II: Data and Directions. Washington, D.C.: Department of Audio-visual Instruction, National Education Association, 1965. pp. 162-212.

A Point of View

The speed of change in our society continues so swiftly that it is virtually impossible to keep informed of new technological advances that may have direct application to our educational complex. An example of this rapid change is in the marketing of a new electronic machine that can grade thirty test papers in thirty seconds and even print the student's score on his paper. Who would have predicted five years ago that fifty million people could take the same test at the same time, (The National Driving Test) and know how well they tested, all within one hour?

Perhaps the knowledge explosion, (Scientific knowledge, as an example, now doubles every ten years), has forced upon us the automation explosion. We are confronted, no matter how comfortable and secure we may be with our own self-contained classroom, with some inevitable changes in the society that will produce a more efficient and economical educational system throughout the entire nation and at every level of education--from pre-school to adult. For example, by 1973, there will be eight million college students in the United States, a number which is triple the 1955 total. Many forces are involved in influencing these changes: societal changes, automation advancements, new emphasis on industry's expanding role in creating electronic machines, computers and learning systems, as well as massive federal and state efforts to upgrade the education of minority race members and job retraining programs.

New designs for educating masses of people, at all educational levels will continue to receive increased emphasis until the majority of our population hovering around the so-called poverty level is eradicated to a very high degree. Now we are attempting to teach 100,000 army rejects how to read and write. In the very near future, the majority of children from urban

centers in our country will begin some type of schooling as early as age three. Current federal and state monies being pumped into education at present are only a forerunner of the billions and billions of dollars that will and must be spent in the very near future to teach and train the hard core unemployed, to raise literacy levels both at home and in underdeveloped countries, to train teachers and re-train sub-standard teachers. Massive efforts will be forthcoming to raise levels of educational achievement for slum dwellers, ghetto inhabitants, American Indians, children with Spanish surname and those who move constantly with the crops, as well as our Eskimo and Micronesian populaces.

Who will teach these groups? How will they be taught? What types of educational approaches will be utilized? In a nation that currently produces one-third less than the necessary amount of trained teachers, in the traditional sense of pupil-teacher ratio of one teacher to thirty children, how will we cope with and meet this challenge successfully?

Perhaps our future involvement in the automation explosion is best stated by Dale (17).

> "The revolution in communication and technology has produced ideas faster than we can use them. There is a lag between what we know how to do and what we have done. We know far more about changing the tools than we know about changing the workman.
>
> "Instructional technology is no exception to this rule. The new tools are beginning to pile up, but the highly skilled competence needed to select, use, and evaluate them is lacking. Our big problem in making a changover is not, I believe, that of teacher rejection. It is rather the complexity involved in trying to take seriously the individual differences among children, and to develop a systematic co-ordinated program for meeting these differences. It is a tough and challenging task, worthy of our best professional skill and effort."

<u>The Future Potential of the Automation Explosion--Implications for Teachers</u>.

Every educational level will benefit from new developments in programs, systems and materials of instruction. A discussion of the possible impact and direct involvement these programs will have for educators follows.

(1) <u>Educators will face future developments in instruction as effectively as they have met all challenges and changes of the last forty years</u>. Zinn (48) commented on possible applications of future computers to the teaching scene:

> "The computer may be programmed to encourage revision of materials by automatically summarizing and selecting data to be put before the author. These data would include measures of system cost and student time as well as student performance to suggest modification of the computer materials for the sake of economy as well as effectiveness. . . . Such information, cross-referenced in the computer system, should prove of great value to an instructor in adapting another author's materials for use with his own students."

Although this rather unique application of a computer to education may sound to many of us as being highly unusual, it is but an example of the future changes we face in the years ahead.

(2) Teachers will gradually come to understand and accept the new technology just as they have learned to accept the phonograph, educational film and the concept of an elementary school library as necessary and highly supportive teaching aids. Educational technology will not be a thread to the individual teacher, although it may have a marked effect on her role and responsibility as a teacher. Tobias (45) studied the lack of teacher knowledge, fear of automation and programmed instruction and found these factors most corrosive when terminology of a mechanistic, cybernetic or automatic character was used. The least threatening and most acceptable term for teachers may be "educational technology".

(3) The role of the teacher will change with the adoption and use of new media. Future advances in new media, programs and materials--including both software (book-type material) and hardware (machine-type material)--most probably will change the role of the teacher from that of the teacher of the traditional self-contained classroom to becoming the director of learning experiences but not the sole person responsible for teaching. Yet, the teacher will still be actively engaged in both the teaching-learning situation as well as the never-to-be discarded or replaced catalyst and overseer of the personally guided interaction between pupil and teacher that is essential for maximum and exciting learning. Although the teacher will always remain as the creator of a good learning environment, increasingly the initiative for learning will rest more appropriately with the child. Likewise, the teacher will remain charged with the responsibility of motivating and challenging the student to want to learn--to learn more, to learn it quicker, and to learn it more efficiently.

(4) Greater use of an educational conglomerate will become accepted. A composite or conglomerate will replace separate and sometimes fragmented teacher materials, machines, study areas, educational film and the like. We will think more in terms of the fusing and interweaving of teaching tools into a total learning package or system. Different learning modalities, incorporat-

ing the availability of several or many different approaches to the teaching of a particular skill, concept or appreciation will be available to the teacher and child.

An example of the combining of sets of available media is the more widespread use of new skill-building reading workbooks, integrated with records or tapes. The voice on the record serves as the teacher. The child is directed to each task to be performed in the workbook, then the teacher's recorded voice helps the child correct his own work--immediately after he has completed it and when interest in his personal progress and achievement are highest. One, two or ten children, according to teacher determined need, can work at this activity at the same time. This is but one example of the continuing search to improve the efficiency and economy of pupil learning time.

(5) The typical educational lag of fifty years from the inception of an idea to actual classroom acceptance will be drastically reduced. Rapid dissemination of new technology will approach the medical profession's and industry's promptness in practicing new procedures.

The educational conglomerate will influence the total reading program. There are many positive segments and distinct advantages to these future innovations in education, particularly in reading. The following developments are far beyond the embryonic stage:

a. A greater variety and improved quality of teaching systems to meet the needs of different groups of learners.

b. Efficient use of professional staff, para-professionals, resource personnel and volunteers that will free teachers from menutia-type chores.

c. Greater pupil independence in the learning environment and less reliance on the teacher.

d. Re-training of teachers and up-grading of competency to handle new systems and patterns of educating children.

e. Closer and more immediate access to the most suitable teaching materials--even though the material be located 1,000 miles away.

f. Teaching materials that will mean not books alone, but rather, machines, computers, a variety of communicating media, information retrieval and new designs for educational settings.

Although some of the above-mentioned changes are in the very initial stages, future refinements, perhaps through advanced automation and miniaturization breakthrough, will bring these to use sooner than most of us foresee.

(6) <u>These emerging changes should make us reflect back as well as look ahead</u>. We must carefully evaluate which programs and media are doing a better job than our current materials. In terms of the impact of the use of new technologies on the student, we must do some realistic rethinking of the future of the children, and what we are educating them for. Everyone presently enrolled in our schools will spend the majority of his life in the next century. If we look back to the year 1900, compare our educational systems then--only 8.4 percent of our population was enrolled in high school with even fewer graduating. A much greater increase in high school graduates has taken place in the last twenty-five years. With 52 percent of the population graduating from high school in 1950, we are producing relatively few high school dropouts with most students continuing through junior college, university or other advanced training. No doubt education in the twenty-first century will be vastly different than we now know it.

Two programs involving new educational technology are discussed in this chapter; computer-assisted instruction and the "talking typewriter". As you read about these innovations or view the programs, think not only of their present use, but focus on the vast potential and application of these new technologies in the near future.

COMPUTER-ASSISTED INSTRUCTION

(The reader will find definitions of the asterisked (*) words at the end of this article).

Computer-assisted instruction* involves a system of machines, curriculum, students and teachers organized and interacting in such a manner that the student receives instruction on an individual basis as he proceeds at his own pace through a set of materials suited to his particular needs.

Basically, computer-assisted instruction (usually referred to as CAI) is programmed instruction. However, no programmed textbook has the ability of a CAI system to evaluate student responses automatically, to give oral instructions, to carry on dialogue with the student, or to make instantaneous branching* decisions on the basis of cumulative student records.

Three levels of computer-assisted instruction may be defined. Discrimination between levels is based not on hardware* and software* considerations but primarily on the complexity and sophistication of the student-system interaction. The most advanced student-system interaction may be achieved with a simple teletype terminal* and the most primitive interaction may require some highly complex programming.

At the basic interaction level are those systems which present a fixed, linear sequence of problems. Student errors may be corrected in a variety of ways (e.g., a prompt may be given in the form of a partial answer, or the entire correct response may be furnished following an error) but no real-time decisions are made for introducing unique teaching strategies or instructional materials on the basis of a student response. Such systems have been termed "drill and practice" systems and are exemplified by the Stanford Drill and Practice Program in Arithmetic and in Spelling.

At the other extreme of the interaction scale are "dialogue" programs of the type under investigation at Bolt, Beranak and Newman and at Stanford University. The goal of the "dialogue" approach is to provide the richest possible student-system interaction where the student is free to construct unrestricted natural-language responses, ask questions and, in general, exercise almost complete control over the sequence of learning events.

"Tutorial" programs lie between the above extremes of student-system interaction. Tutorial programs have the capability for real-time decision-making and instructional branching contingent on a single response or on some subset of a student's response history. Such programs allow the students to follow separate and diverse pathways through the curriculum based on their individual performance patterns. The probability is high in a tutorial program that no two students will encounter exactly the same sequence of lesson materials. However, student responses are somewhat limited since they must be chosen from a prescribed set of responses or constructed in such a manner that relatively simple text analysis will be sufficient for their evaluation. An example of this tutorial approach is the Stanford CAI Reading Program that is being carried on at Brentwood School, Ravenswood City School District, East Palo Alto, California. It is this level of student-system interaction that will be discussed here.

The Stanford Project has a three-fold objective: "...to establish the feasibility of this mode of instruction with young children," to provide "a school-based laboratory in which to conduct curriculum research and evaluation," and "to study under highly controlled conditions the acquisition and retention processes involved in mastering a skill such as initial reading." (47)

The Stanford-Brentwood laboratory utilizes an IBM 1500 CAI system. The 1500 system was designed and constructed by IBM engineers in close collaboration with Stanford personnel. The student response terminals or stations, consist of a cathode ray tube (CRT), a modified typewriter keyboard, a light probe,* a film projection device, and a set of earphones with an attached microphone.

The CRT is essentially a television screen on which alphanumeric* characters and a limited set of graphics (i.e., simple line drawings) can be generated under computer control. The film projector is a 16 mm. rear-view filmstrip projector which can display still pictures in black and white or color. Each filmstrip is stored in a self-threading cartridge and contains over 100 frames which may be accessed randomly by means of computer control.

The major response device used in the reading program is the light pen. The light pen is a light-sensitive probe which registers the student's response in the computer. Responses may also be entered through the keyboard. Minimal use has been made of the keyboard since there is the problem of teaching first-grade children to handle a typewriter keyboard.

Prerecorded audio messages are played to the children through the earphones. There is also an on-line recording capability. The children may, when the microphone is activated, record their own production of a given text displayed on the screen. This can then be played back to them with or without an adult model. The recording and play-back capability helps compensate for the absence of a voice analyzer. The system cannot evaluate the student's vocal production and therefore each student becomes his own voice analyzer. (Figure 1)

Laboratory Organization and Operation

The laboratory is housed in a rectangular prefabricated steel structure approximately 3200 square feet in area. The building contains the terminal room, the off-line teaching room, the central computer room, and a group of offices for the laboratory personnel. (Figure 2)

The staff of the Stanford-Brentwood CAI laboratory consists of ten members. The laboratory is under the general management of a senior programmer who is also in charge of the data reduction staff. His staff includes two programmers, two graduate students and a secretary who also functions as a receptionist. The systems group is headed by another senior programmer who has on his staff an assistant programmer and a computer operator, plus a technician who handles audio assemblies. The reading coding group is directed by a senior lesson programmer and consists of four coders,

Each child works at a student terminal or station with equipment as shown in the drawing:

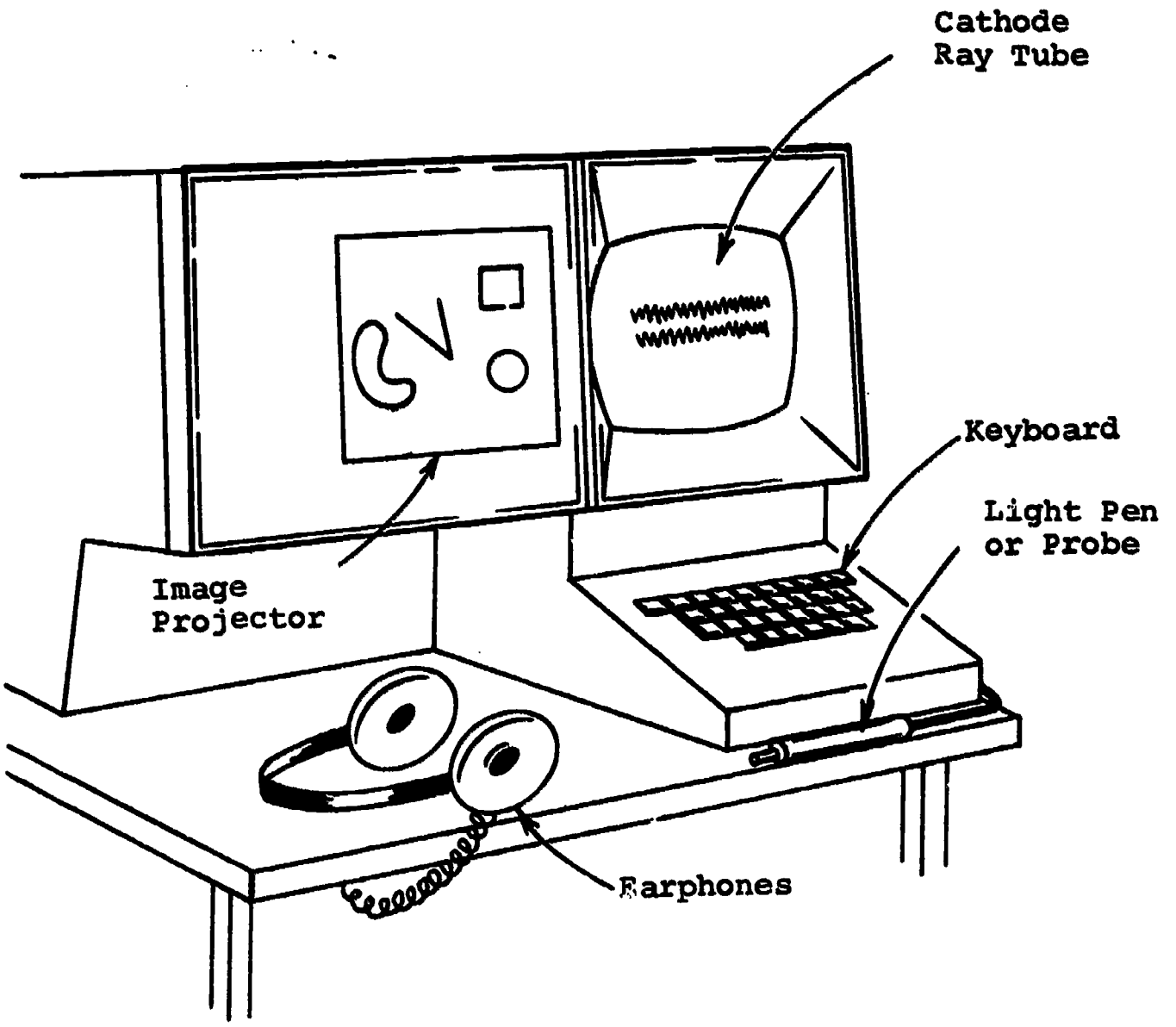


Figure 1.

There are two devices for visual displays: an IBM 1510 Instructional Display and an IBM 1512 Image Projector. The Instructional Display is similar to a small television screen, and can be used to display letters, numerals, and some pictures and special symbols. The Image Projector is used to project color pictures from a 16mm film strip. The children wear earphones in order to hear the recorded messages which guide them and explain to them what they are to do. The children may respond by using the keyboard or by pointing with their light pen to words or pictures shown on the Instructional Display. The equipment can also record the students' oral responses which can be either replayed for the child or saved for the teachers to monitor at a later time.

STANFORD'S SYSTEM CONFIGURATION FOR COMPUTER-ASSISTED INSTRUCTION

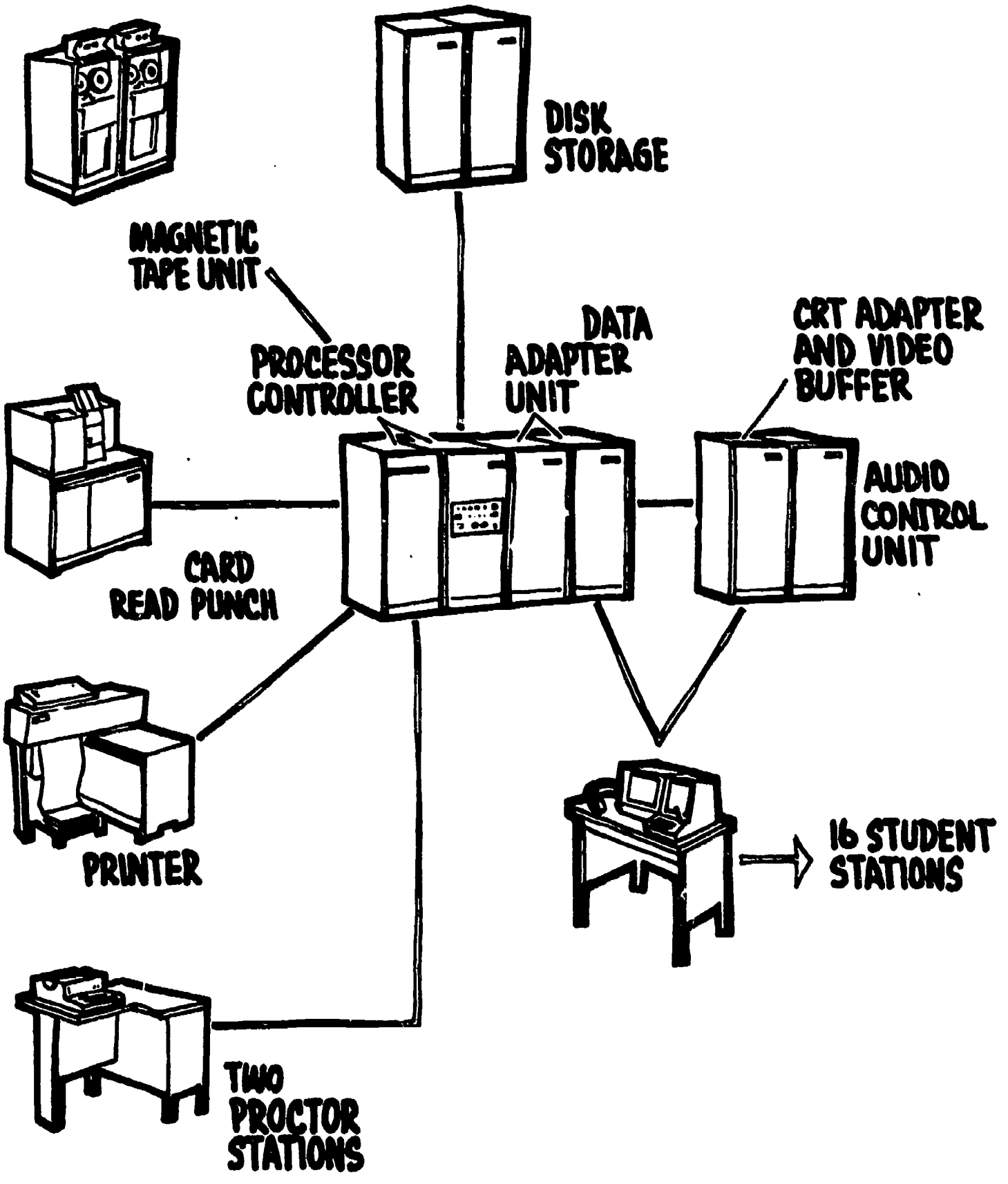


Figure 2.

plus part-time debuggers and graduate assistants. Three proctors handle the children in the terminal room itself and are responsible for off-line instruction. IBM has also provided several customer engineers who are either on duty at the laboratory or are on call.

Students come to the laboratory in four groups, since the terminal room is equipped to accommodate only sixteen students at a time. Each group receives 20 minutes of instruction and there is a minimum of 10 minutes between groups. The 10-minute interval is necessary in order to prepare the system for the next group. Each student is signed-on at a response terminal and the appropriate films and audio tapes are loaded into the projectors and audio-drive units. When the sign-on process is complete the name of the student assigned to a given terminal appears on the CRT.

When a new group arrives, the students enter the terminal room, seat themselves before their assigned terminals, put on their earphones, touch their names with the light pen and the lesson begins. During the instructional session the machine proctor is stationed at a proctor's typewriter which transmits messages from the central system. Each block of problems within a lesson has an error limit which is 50 percent of the total number of problems within the block. If this error limit is exceeded by the student, notification of this condition is transmitted to the machine proctor, who in turn conveys the information to the teaching proctor. The teaching proctor then observes the student and chooses between two courses of action. If the difficulty appears to be mechanical (e.g., the student is not using the light pen correctly) or some minor misunderstanding of directions or lapse of attention, the teaching proctor may sign on the terminal with the student and help him through the troublesome section. By signing on the terminal, a proctor bit is set in the response record to identify responses which are not necessarily those of the student. If, however, the student's difficulty appears to be of a serious nature, the proctor may remove the student from the terminal and transfer him to the remedial teacher for diagnosis and personal instruction in the off-line teaching room.

It is not intended that all initial reading instruction be carried out in the 20-minute session on the CAI system. The program is a cooperative effort between the normal classroom reading instruction and the Stanford CAI project. Accordingly, teachers with the CAI curriculum receive regular reports on the performance of their students on the system. The teachers, in turn, keep the project directors informed of the kind of instruction they are carrying out within their own rooms. This dialogue is effected during weekly meetings.

The project's contribution to the dialogue consists primarily of a weekly report which is generated by the computer and

which gives the student location by lesson within the curriculum, plus a weighted index of each student's performance within each of the standard lesson blocks. This performance index is cumulative but is weighted for current performance more heavily than for past performance. Also included on the weekly report is a record of time lost from the system due to various causes and a cumulative total of each student's time on the system. On the basis of the weekly report and discussion within the weekly meetings, the classroom teachers are able to devise and carry out instructional procedures appropriate to each student's progress on the system.

An extensive teacher's manual includes not only a detailed description of the curriculum but also a large number of correlated and well prepared classroom activities from which the teacher may choose. Exercises and games keyed to blocks of lessons and applicable to small groups as well as to individual students are presented.

Curriculum Rational and Description

A basic assumption underyling the Stanford CAI Reading Curriculum is that the English-speaking child brings to the initial reading task a relatively large vocabulary and at least an operational knowledge of English syntax. He has a knowledge of the language which is sufficient to enable him to communicate with his peers and with adults. Therefore, the primary goal of initial reading is not to teach the language but to teach the orthographic code by which we represent our spoken language.

If one is attempting to teach a code, the most reasonable approach is to begin, not with all the irregularities and exceptions, but rather with the regular and consistent patterns. This position is not unique to the Stanford Project. It has been advocated by linguists for some years (Bloomfield (11), Fries (18)) and has been implemented in several "linguistically oriented" reading series.

A detailed discussion of the psycholinguistic rationale of the curriculum may be found in Rodgers (37) and Hansen and Rodgers (25). The following quotations from Rodgers (37) provide a concise summary of the goals and procedures in the Stanford Project.

> "From a practical point of view, our program is an attempt to provide non-readers with some limited analytic skills--phonological, morphological, syntactic and semantic--and some considerable confidence in the use of these skills. It is not our intention to teach the child all of the sound-symbol pattern correspondences, all of the morphological variations, all of

the usages of frequent vocabulary items, or all of the sentence patterns of English. It is our intention to give the student enough skill and self confidence to involve him in that confrontation known as beginning reading. We believe it is the ability to make reasonable inferences concerning unfamiliar or unobserved sequences on the printed page that we are ultimately trying to teach reading.

We have defined the Stanford approach to initial reading as applied-psycholinguistic. Hypotheses about the nature of reading process, the nature of learning to read, and the nature of teaching reading have been constructed on the basis of linguistic information about the structure of language, empirical observations of language use, and an analysis of the function of the written code. These hypotheses have been tested in experimental situation, structured to represent as realistically as possible actual learning and teaching situations. On the basis of experimental findings, these hypotheses have been modified, retested and ultimately incorporated into the curriculum as principles dictating presentation variables and values. This is, of course, somewhat of an idealization since very little curriculum material can be said to have been the perfect end-product of rigorous empirical evaluation. We would claim, however, that the basic tenets of the Stanford program have been formulated and modified on the basis of considerable empirical evidence. It seems probable that these may be further modified or re-formulated on the basis of the considerably greater amount of empirical evidence which will be available as the result of a year's CAI experience with classes of beginning readers.

The Stanford CAI Reading Curriculum may be divided into four broad areas of concentration: (1) decoding skills, (2) comprehension, (3) games and other motivational devices, and (4) review. The lesson material and teaching strategies will be discussed briefly in each area. While all lessons are not alike in their sequence of events, the block level flow chart (Figure 3) of Level III, Lesson 9, may be considered as a fairly representative example.

1. Decoding Skills. The tasks involved in this area of concentration are not unlike those with which you are already familiar. The difference lies in the unique production of these tasks in the student terminal.

An example of one is the same-different task discussed here to give you an idea of the process.

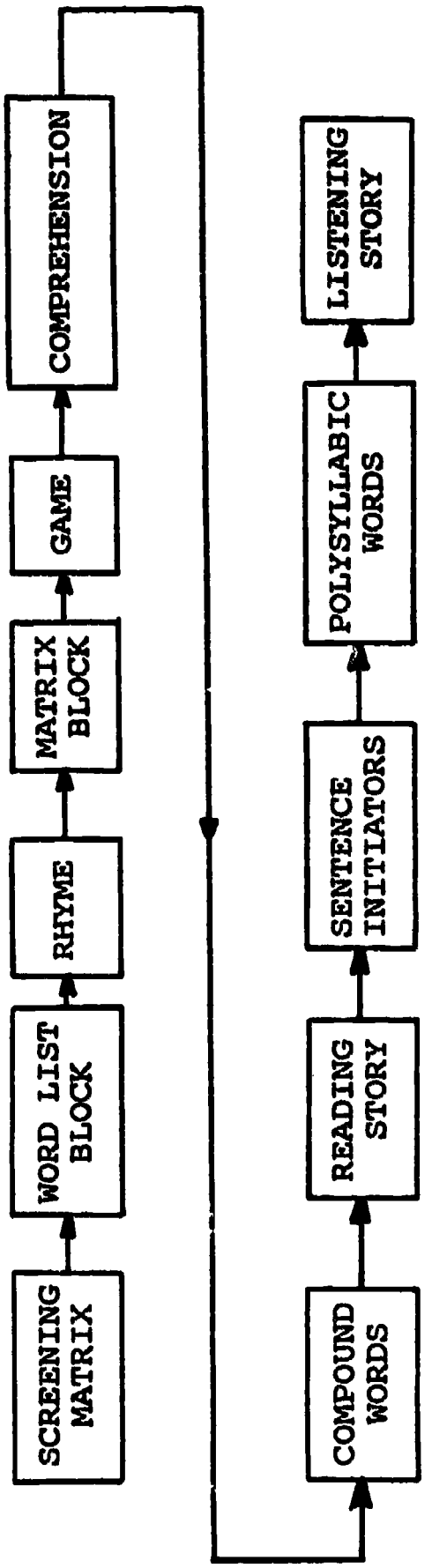


Figure 3. Lesson Flow-Diagram

A pair of letter-strings is presented on the scope. The student is requested to touch one of two boxes that designates whether the letter-strings are the same or different. The letter-strings are designed to include reversals, one letter differences, two letter differences, and easily confused letters. This task provides additional opportunities to acquire functional recognition cues and the serial order concept of letter sequences within words.

The matrix* construction presents rhyming patterns in column such as:

	an
r	ran
f	fan
c	can

Alliteration patterns are presented in rows as shown below. The matrix is constructed one cell at a time.

	an	at	ag
r	ran	rat	rag

2. Comprehension. Although a great deal has been written about "reading comprehension," it is not at all clear what is meant by the term. The general approach in current reading materials and reaching achievement tests is at the paragraph level and primarily employs practice in recall or identification of specific details and sequence of events and in identifying the "main idea."

While using the standard techniques, The Stanford Project has also attempted to look at the question at the sentence level. They have advanced three propositions as necessary components of such a definition. In order to maintain that one comprehends a sentence one must be able to demonstrate that one has: (1) an appropriate set of semantic associations for each word in the sentence,(2) an operational knowledge of syntax, and(3) the ability to identify the words in the sentence which convey a given piece of information.

Usage

A list of words is displayed on the scope. Definitions are

given auditorally one at a time and the student must identify the word that matches each definition by a touch-probe response.

A strict "dictionary definition" format is avoided in defining word items. Stanford definitions have been re-constructed to stress functional meanings. This re-construction can be seen in the following example. For the word bat one dictionary definition is: "a stout wooden stick or club, used to hit the ball in baseball, cricket, etc." In the lesson materials this is reformulated in the following instruction: "Touch and say the word that means something you might use to hit a baseball."

Form Class

As part of the concept of "comprehension" of a sentence, one must consider the child's basic understanding of English syntax. One behavioral manifestation of a child's syntatic sophistication is his ability to functionally group words into common form classes (nouns, verbs, modifiers, etc.). This section provides lesson materials that both assess and teach the form class characteristics for the words just presented in the matrix section.

The following type of problem is presented to the student:

IMAGE ON CATHODE RAY TUBE			RECORDED TEACHER INSTRUCTIONS
Dan saw the	tan fat man run	hat.	Only one of the words in the column will make sense in the sentence. Touch and say the word that belongs in the sentence.
			Correct Answer: Yes, Dan saw the tan hat. Do the next one.
			Wrong Answer: No, tan is the word that makes sense. Dan saw the tan hat. Touch and say tan.

Inquiries

Individual words in sentences constitute unique and conversationally correct answers to questions. These questions the form "Who ---?, What ---?, How ---?" etc. The ability to select the word in a sentence that uniquely answers one of these questions demonstrates one form of reading comprehension at the level of the sentence. The set of exercises described in this section constitutes an assessment of this reading comprehension ability.

John hit the ball.	Touch and say the word that answers the question.
Question:	Who hit the ball?
Correct Answer:	Yes, the word "John" tells us who hit the ball.
Wrong Answer:	No, John tells us who hit the ball. Touch and say John.
Question 2:	What did John hit?
Correct Answer:	Yes, the word "ball" tells us what John hit.
Wrong Answer:	No, ball tells us what John hit. Touch and say ball.

As in the form class section, each sentence is composed of words from the student's reading vocabulary. A wide variety of sentence structures are utilized beginning with simple subject-verb-object sentences and progressing to structures of increasing complexity.

Stories Read to the Children

From the very beginning lesson the children have an opportunity to listen and react to children's literature. In the actual lesson format, the story is presented on the CRT, sentence by sentence, so the child can follow the print as it is read to him. Pictures are presented with stories if the Project staff believes the children need help in understanding certain concepts being presented. At the completion of each stury, the following types of questions are asked:

(1) subjective ratings as to positive or negative reactions,

(2) specific questions on factual identification of characters or events in the story,

(3) identification of the main theme of the story,

(4) identification of the sequencing of events.

Stories the Children Read

When the children have mastered a sufficient amount of

vocabulary, including function and syntax words, stories which are actually read by the children are introduced into the reading lessons. They are first inserted in the lessons at Level IV.

The stories are presented on the scope in the same manner as a story is presented in a story book. The child is to read the story by himself. If he does not know a word, he is directed to touch the word and the entire sentence in which the word appears is read to him. Illustrations are used with the stories as they are needed at certain points to help develop an understanding of the concepts being presented.

After the child has completed the story, he is presented with a series of questions to determine his level of comprehension. The types of questions are divided into four main categories.

(1) questions that deal with the direct recall of facts such as the identification of characters and the sequence of events,

(2) generalizations about main ideas which relate both characters and/or events are not presented in close contiguity,

(3) inferential questions which require the child to relate information presented in the story to information stored in his memory about his own experience,

(4) subjective questions which include personal ratings and opinions of the stories.

3. Games and other Motivational Devices

Rhymes

Rhymes are sequenced into a lesson as a listening activity to help the child develop competency in the discrimination of the rhyming and alliterative sounds of words and to demonstrate to the child the rhythmic use of language. The selection of rhymes for each lesson is based upon the sound patterns found in the matrix section of the lesson.

Games

Games are sequenced into each lesson primarily to encourage continued attention to the lesson materials. The games are similar to those played in the classroom and utilize the terminology common to game-like situations such as baseball or bingo. In addition, each game has been structured to reveal any developing linguistic competency on the part of the child. The question of

how children come to see orthographic commonalities is relatively unexplored, and the game is intended to provide the researchers with some basic information with which they can more precisely direct their thinking. Moreover, the games give the children added practice on the sequenced vocabulary.

4. Review Lessons. Two types of review are to be found in the reading lessons. A continuous review is inherent in the learning materials which are sequentially introduced in a given lesson and subsequently incorporated in the activities of succeeding lessons. For example, words which are introduced in list and matrix exercises in Lesson N are reviewed in the sentence initiator and story materials of Lesson N+1. A more conventional type of review is also furnished by lessons designated as review lessons. These appear approximately every seventh lesson. Vocabulary and concepts previously introduced are re-presented but in different formats.

For additional information on the Stanford CAI Reading Program write to:

Dr. Richard C. Atkinson or Dr. H. A. Wilson
Institute for Mathematical Studies in the
Social Sciences
Ventura Hall
Stanford University
Stanford, California 94305

Stanford-Brentwood CAI Laboratory visits are on a prescheduled basis. You may write to:

Coordinator of School Affairs
CAI Laboratory
2086 Clarke Avenue
East Palo Alto, California 94303

Or, you may call: (415) 325-1568 (Receptionist can schedule visits).

Glossary of Computer Terminology

alpha-numeric

The alphabet from A-Z, the numbers from 0-9 and all the special characters such as +, =, -, x, /, etc.

branching

The computer determines if a learner is up to criteria and then shifts the material presented to him according to the result of the criterion test.

computer-assisted instruction (CAI)

1. A totally specified instructional program in which a computer is utilized for the purposes of response evaluation, task sequence, and record keeping.

2. An instructional program which utilizes a computer system as an instructional aid in the following ways:
   a. It provides the classroom teacher with performance data on individual children and,
   b. It provides children with subject matter drill and evaluation (an instructional program), thus allowing the teacher more opportunity for enrichment activities.

hardware

The actual computer wires, wiring, configuration. The solid pieces of a computer.

input

1. Information transferred from outside the computer (by man or machine), including secondary or external storage, into the internal storage of the computer.

2. The sections of the computer which accept information from outside the computer (i.e., punch-card readers).

light probe (light pen)

A special pen with a current going through it so that when it is placed on a CRT (cathode ray tube--the television screen) or scope it completes a circuit and allows the computer to determine where the pen (probe) was placed on the screen.

matrix

Rectangular arrays of entries appearing in rows and columns. These entries can be any alpha-numberic symbol. (See above for definition of alpha-numeric.)

output

1. Information generated by the computer and emitted in some form (i.e., punched cards, display on scope, writing on magnetic tape, storing on magnetic drums.)

2. Information transferred from the internal storage of a computer to secondary or external storage, or to any device outside the computer.

3. Generally, giving out information from the internal memory of the computer.

4. The device or devices which bring information out of the computer.

scope

The cathode ray tube commonly referred to as CRT.

software

1. The programs, or actual series of instructions, for the computer.

2. Computers, assemblers, and programming systems.

terminal

Input and output devices (i.e., student stations.)

An overview demonstration lesson on film, intended for parents, classroom teachers, curriculum writers, researchers, computer personnel, as well as others interested in this mode of instruction, may be borrowed by writing to:

Coordinator of School Affairs
CAI Laboratory
2086 Clarke Avenue
East Palo Alto, California 94303

THE "TALKING TYPEWRITER"

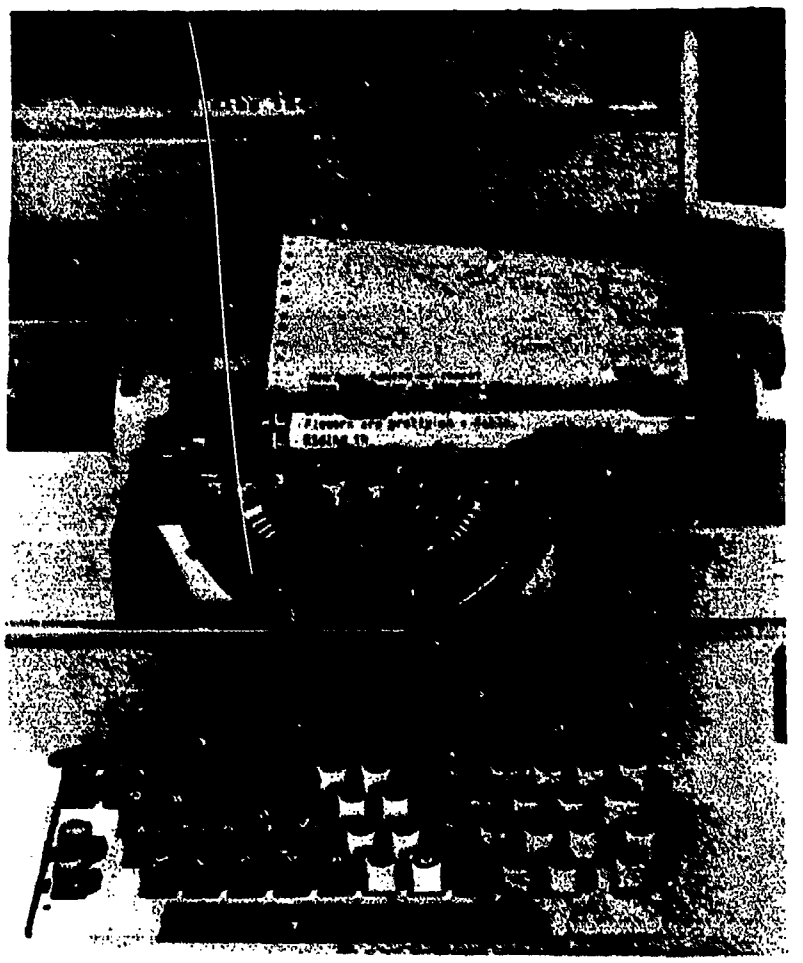
From the Publisher's Material and Program ▪ ▪ ▪

The "Talking Typewriter" was developed by Dr. Omar Khayyam Moore and Mr. Richard Kobler. It is manufactured by The Thomas A. Edison Laboratories, Division of McGraw-Edison Company of West Orange, New Jersey. It is available on a sale or lease basis from Responsive Environments Coorporation (R.E.C., Englewood Cliffs, New Jersey.) R. E. C. provides programs and programming assistance, trains personnel in operating procedure, installs and maintains the sophisticated Learning Systems.

The "Talking Typewriter" is a computer assisted, multisensory (sight, sound, touch), Learning System for teaching the Language Arts (reading, writing, speech, listening) and other related skills. It has performed very effectively with normal and gifted students, the slow-to-learn, mentally retarded and brain damaged individuals. It has also helped in the therapy of autistic children.

It requires no programming skills--only a knowledge of typing.

The specially designed typewriter keyboard has colored

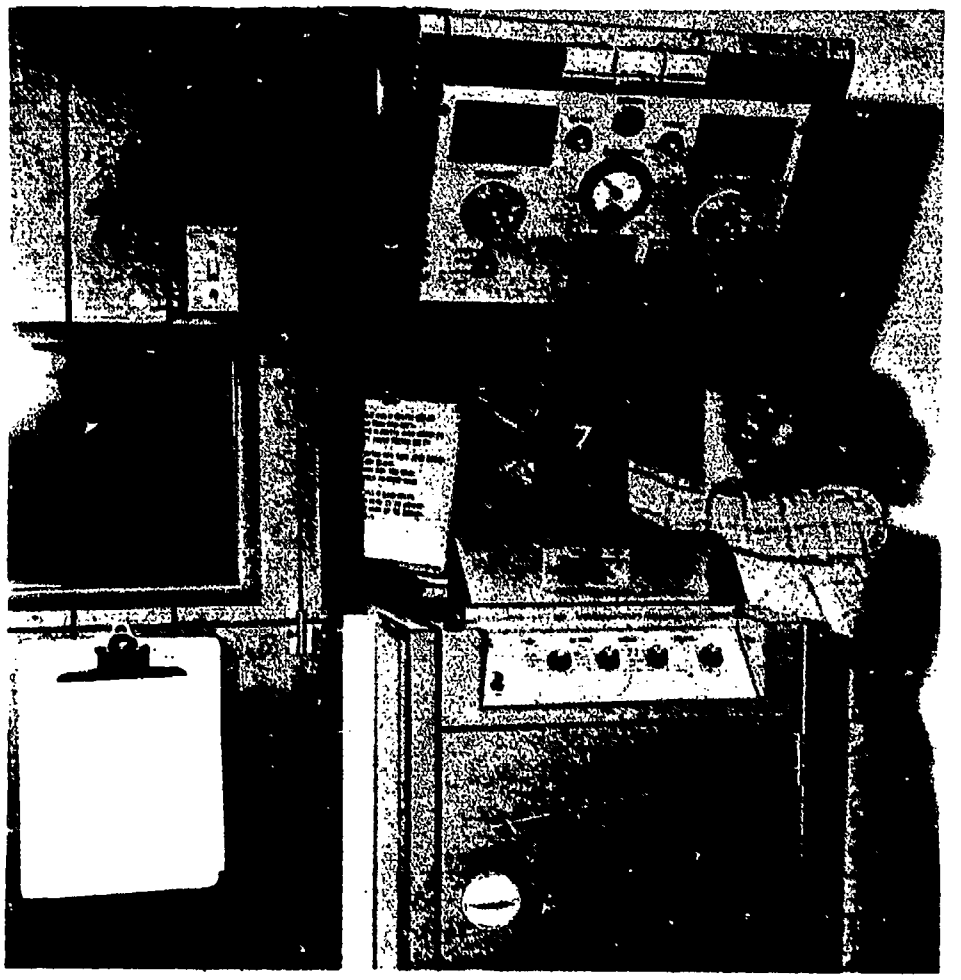


keys that act as clues to key identification. Beginners have their fingernails painted in corresponding shades. The keyboard contains all the basic alpha-numerical and arithmetical symbols that type in both upper and lower case.

The device is also equipped with a speaker; recording equipment; a slide projector; and an exhibitor.

Also referred to as The Edison Responsive Environment Instrument, it reproduces several of the sensory responses of a human being. That is, it talks, it listens, it accepts, it responds, it presents pictorial or graphic material, it comments or explains, it presents information, and it responds to being touched. In use, these features of sight, sound and touch can be orchestrated to do each of these things in a straight line sequence or in planned parallels of these different sensory behaviors.

Non-professional programmers are trained by the Responsive Environments Corporation, the manufacturers. The forms for the encoded card (approximately 8" x 11") provide a convenient record of the lessons prepared; and can be filed for future reference, reuse and research purposes. This sytem can be programmed in English or in the language required by the student. The Talking Typewriter is self-contained. No remote connections are necessary. All program preparation is always carried out



directly on the instrument used by the student. While one child is working on the rest of his program, the monitor is free to set up another student in another booth for his individualized session. The changeover can be made by the non-professional, trained teacher aid. The front of the encoded card presents the typed material to be shown by the exhibitor. The back is coated with magnetic storage material that stores the audio lesson as well as the digital codes for operating the keyboard, the slide projector, the moving pointer and other commands which synchronize with the system. Although the typical lesson is 15 to 20 minutes long, up to one hour's lesson can be contained on each card. The pace at which a student is learning, can be observed, and any necessary adjustments to maintain a comfortable discovery atmosphere can be made from outside the booth.

In its simplest operation, the depressing of any key by the pupil will result in the immediate pronunciation of the particular key-symbol and also in the instantaneous typing of that symbol on the typewriter paper in extra large type-style.

Not only must the keyboard be "jam-proof" but, most important, once a key has been depressed, no other key of the total keyboard can be depressed until the audio-pronunciation is completed. Otherwise this would lead to "wild-typing" and jibberish audio pronunciation.

Probably one of the most important features of the E.R.E. System is the fact that any symbol pointed to by E.R.E. is also "encoded" in its keyboard. This means that this particular key is the only one which can be operated by the pupil and which will type its symbol on the typing paper, while all other keys are inoperative (blocked).

A typical operation would be for E.R.E. to point out a particular letter, to pronounce this letter to the pupil, and to free the one single, particular key corresponding to this symbol for manual operation by the pupil. The moment the pupil depresses this key, the pointer will move to next symbol, pronounce it, and free the corresponding key on the keyboard. Here, again, it must be possible for the E.R.E. to pronounce symbols in the before-mentioned two or three modalities (letter names and phonemes dependent upon the program).

As the pupil proceeds from letters to words, an additional audio system takes over which, although it can be programmed to take effect at any time or special point of the program, is frequently activated when the "space-bar" is depressed by the pupil. Since the depression of the "space-bar" indicates the end of a word, E.R.E. will at that point pronounce and spell the word just typed. Similar rules hold true of the audio-recapitulation of a total sentence after "period" and even of total paragraphs or stories.

Finally, in order to give precisely controlled "gestalt-illustrations" of orthographically presented materials, pictures can be shown to the pupil in close relation to the rest of the program. This is accomplished through an automated rear-projection-instrument built into E.R.E.

Research

To date, little research evidence is available on this computer-assisted apparatus. What little research has been done consists of very small groups of children and adults. The few reports that are available do not give thorough descriptions of populations--both control and experimental. This information is difficult for the researchers to obtain, as the few studies completed all took place in large urban poverty areas with highly trancient populations, where data is not easy to gather.

Also hampering research efforts, is the fact that in addition to a child working on the Talking Typewriter for a twenty minute lesson, he then returns to his classroom and may or may not receive additional instruction from the classroom teacher. This variable is most difficult to control. Another factor that has not been detailed as yet, is the effect the quality of the program the child is exposed to has on his ability to learn. How good is the program itself? Perhaps, it is in large part

dependent on the competency of the programmer, and the quality and effectiveness of the program the child receives.

Not to be overlooked, however, is the enormous potential computer-assisted programs have for education in the not too distant future. As with many other approaches to reading instruction, much more research needs to be done before we can reach even tentative conclusions. Until that time, we should keep an open eye and mind to the advantages and disadvantages of newer programs such as this one.

Additional information may be obtained from the publisher by writing the marketing representatives of the Edison Responsive Environment:

Responsive Environments Corporation
200 Sylvan Avenue
Englewood Cliffs, New Jersey 07632

To Talk Over With Your Colleagues ▪ ▪ ▪

1. Teaching is complicated and highly complex. Many things a teacher does--somewhat routinely--could never be programmed or handled by a machine. Discuss the teaching-learning situations in which a teacher can never be replaced by a machine.

2. In the near future, the use of para-professional personnel in school and classroom will become more commonplace. How would you and your colleagues utilize the services of ancillary personnel in the teaching of reading? How can they help you build a more efficient and effective reading program?

3. The fear of automation by classroom teachers is real. What do you consider to be the most important ways in which automation may affect the regular classroom teacher as we now see her role?

REFERENCES AND SELECTED BIBLIOGRAPHY

1. Anderson Jr., G. Ernest; Bushnell, Donald D.; and Zinn, Karl L. "Chicago Project Uses Talking Typewriter." Automated Education Letter 2: 97; July-August 1967.

2. Anderson Jr., G. Ernest; Bushnell, Donald D.; and Zinn, Karl L. "Computerized Spelling Analysis." Automated Education Letter 1: 6-8; March 1966.

3. Anderson Jr., G. Ernest; Bushnell, Donald D.; and Zinn, Karl L. "Educators Get Look at Learning System." Automated Education Letter 2: 11 14; November 1967. An article on the "Talking Typewriter."

4. Annett, John. editor. Programmed Learning and Educational Technology 5: 1; January 1968. The entire issue is devoted to a collection of papers on computer-assisted instruction.

*5. Atkinson, Richard C. "Instruction in Initial Reading Under Computer Control: the Stanford Project." Reading Research Quarterly 3: 3 418-420; Spring 1968.

6. Atkinson, Richard C. "Learning to Read Under Computer Control." Programmed Learning and Educational Technology 5:1 25-37; January 1968.

7. Atkinson, Richard C., and Hansen, D. N. "Computer-Assisted Instruction in Initial Reading: the Stanford Project." Reading Research Quarterly 2: 1; Fall 1966. pp. 5-25.

8. Atkinson, Richard C., and Suppes, Patrick. Progress Report 6, Stanford Program in Computer-Assisted Instruction for the Period January 1, 1967 to March 31, 1967. National Science Foundation Grant NSFG/18709. Institute for Mathematical Studies in the Social Sciences. Stanford University: Stanford, California

9. Atkinson, Richard C. and Suppes, Patrick. Progress Report 7 Stanford Program in Computer-Assisted Instruction for the Period April 1, 1967 to June 30, 1967. National Science Foundation Grant NSFG/18709. Institute for Mathematical Studies in the Social Sciences. Stanford University: Stanford, California

10. Barrett, Richard S. "The Computer Mentality." Phi Delta Kappan 49: 430-434; April 1968.

11. Bloomfield, Leonard. "Linguistics and Reading." Elementary English Review 19: 125-130; 1942.

*Also found under recommended reading.

12. Bundy, Robert F. "Computer-Assisted Instruction--Where Are We?" Phi Delta Kappan 49: 424-429; April 1968.

13. Bushnell, Donald D. "Computer-Assisted Instruction--A Summary of Research Programs." Automated Education Handbook. (Edited by Edith H. Goodman.) Detroit, Michigan: Automated Education Center, 1965. pp. IV A 41-59.

*14. Bushnell, Donald D. "Computer Based Instructional Systems." Automated Education Handbook. (Edited by Edith H. Goodman.) Detroit, Michigan: Automated Education Center, 1965. pp. IV A 1-12.

15. Bushnell, Donald D. "Computer Technology." Catalyst for Change: A National Study of ESEA Title III. Prepared for the Subcommittee on Education of the Committee on Labor and Public Welfare. Washington: U. S. Government Printing Office, 1967. pp. 353-355.

16. Bushnell, Donald D., and Allen, Dwight D. editors. The Computer in American Education. New York: John Wiley and Sons, 1967.

17. Dale, Edgar. "Instructional Resources." The Changing American School. (Edited by John I. Goodlad.) The Sixty-Fifth Yearbook, Part II, National Society for the Study of Education. Chicago: University of Chicago Press, 1966. Chapter 4, p. 109.

18. Fries, Charles. Linguistics and Reading. New York: Holt, Rinehart and Winston, Inc., 1963.

19. Fishman, Elizabeth Jane; Keller, Leo; and Atkinson, Richard C. Massed vs. Distributed Practice in Computerized Spelling Drills. Technical Report No. 117, August 18, 1967. Institute for Mathematical Studies in the Social Sciences. Stanford University: Stanford, California.

*20. Gentile, J. Ronald. "The First Generation of Computer-Assisted Instructional Systems: An Evaluative Review." AV Communication Review 15:1 23-53; Spring 1967.

*21. Glaser, Robert. editor. Teaching Machines and Programmed Learning, II: Data and Directions. Washington, D. C.: Department of Audio-Visual Instruction, National Education Association, 1965. pp. 162-212.

22. Goodman, Edith H. editor. Automated Education Handbook. Detroit, Michigan: Automated Education Center, 1965.

*Also found under recommended reading.

23. Hall, K. A., and others. "Gradient-and Full-Response Feedback in C-A i. Journal of Educational Research 61: 195-199; January, 1968.

24. Hansen, Duncan N. "Computer Assistance with the Educational Process." Review of Education Research 36:1 588-603; February 1966.

25. Hansen, D. N., and Rodgers, T. S. An Exploration of Psycholinguistic Units in Initial Reading. Technical Report 74, Stanford University: Stanford, California, 1965.

26. Hansen, Duncan N., and others. "A Reading Curriculum for a Computer-Assisted Instructional System: The Stanford Project." Progress Report. Stanford: Institute for Mathematical Studies in the Social Sciences, Stanford University. August 15, 1966.

27. Hickey, Albert E., and Newton, John M. "Computer-Assisted Instruction, A Survey of the Literature." Newburyport, Massachusetts.: Enteleck, Inc. (Prepared under Office of Naval Research Contract Nonr 4757 (00): updated semiannually).

28. Iverson, William J. "Age of the Computer and Reading." Claremont Reading Conference Yearbook 31: 159-177; 1967.

29. Jacobs, Paul I. "Programs and Evaluation." Automated Educational Handbook. (Edited by Edith H. Goodman.) Detroit, Michigan: Automated Education Center, 1965. pp. II A 51-55.

30. Jacobs, Paul I. "Programs and Evaluation." Automated Educational Handbook. (Edited by Edith H. Goodman.) Detroit, Michigan: Automated Education Center, 1965. pp. II A 51-55.

30. Komoski, P. Kenneth. "Teaching Machines and Programmed Instruction Today." Automated Education Handbook. (Edited by Edith H. Goodman.) Detroit, Michigan: Automated Education Center, 1965. pp. II A 1-8.

31. McGracken, Glenn. The Right to Learn. Chicago: Henry Regnery Company, 1959.

32. Martin, John Henry. Freeport Public School Experiment On Early Reading Using the Edison Responsive Environment Instrument. New York: Responsive Environments Corporation, 1964. (As cited by Richard L. Wing. Use of Technical Media for Simulating Environments to Provide Individualized Instruction.) Westchester County, New York: Cooperative Research Project No. 1948.

*33. Oettinger, Anthony G. "The Myths of Educational Technology." Saturday Review, May 18, 1968. pp. 76-77, 91.

34. Pines, Maya. "How Three-Year-Olds Teach Themselves to Read and Write--and Love It." Harpers Magazine, May 1963.

35. Pines, Maya. "What the Talking Typewriter Says." The New York Times Magazine, May 9, 1965.

36. Rath, G. J. "Computer Assisted Instruction." Educational Screen and Audiovisual Guide 46: 26-27; 1967.

37. Rodgers, Theodore S. Linguistic Considerations in the Design of the Stanford Computer-Based Curriculum in Initial Reading. Technical Report No. 111, June 1, 1967. Institute for Mathematical Studies in the Social Sciences. Stanford University: Stanford, California.

38. Rossi, Peter H., and Biddle, Bruce J. editors. The New Media and Education. New York: Doubleday and Company, Inc., 1967. (Available in paperback as Anchor A604.)

39. Sullivan, Ronald. "Computerized Typewriter Leads Schizoid Children Toward Normal Life by Helping Them to Read." New York Times, March 12, 1965.

40. Suppes, Patrick. "The Computer and Excellence." Saturday Review, January 14, 1967.

41. Suppes, Patrick. "Computer Technology and the Future of Education." Phi Delta Kappan 49: 420-423; April 1968.

42. Suppes, Patrick. "Plug-in Instruction." Saturday Review, July 23, 1966.

43. Suppes, Patrick. "The Uses of Computers in Education." Scientific American, September 1966. pp. 207-220.

44. Tarkelson, Gerald M., editor and chairman. "Instructional Materials: Educational Media and Technology." Review of Educational Research 38:2 11-196; April 1968.

*Also found under recommended reading.

45. Tobias, Sigmund. "Lack of Knowledge and Fear of Automation as Factors in Teacher's Attitudes Toward Programmed Instruction and Other Media." AV Communication Review 14: 99-109, Spring 1966.

*46. Trocchi, Robert F., and Rose, Charles A. "The Computer in the School of the Early '70's." Journal of Educational Data Processing 4: 3; Summer 1967.

*47. Wilson, H. A. and Atkinson, Richard C. Computer-Based Instruction in Initial Reading: A Progress Report on the Stanford Project. Technical Report No. 119, August 25, 1967. Institute for Mathematical Studies in the Social Sciences. Stanford University: Stanford, California. Limited edition.

48. Zinn, Karl L. "Computer Technology for Teaching and Research on Instruction." Review of Educational Research 37: 618-634; December 1967.

49. Zinn, Karl L. "Specifications for Computer Aided Instructions Systems." Automated Education Handbook. (Edited by Edith H. Goodman.) Detroit, Michigan: Automated Education Center, 1965. pp. IV A 21-33.

*Also found under recommended reading.

PERIODICALS

American Educational Research Association

A separate section in this organization's publication is devoted to CAI and education.

Audiovisual Guide

Audiovisual Instruction

Audiovisual Language Journal

Automated Education Letter

A monthly supplement to Automated Education Handbook.

Automated Teaching Bulletin

AV Communication Review

The Clearing House

Data and Control

Educational Technology

Entelek, Inc.

CAI Research Abstracts. A monthly supplement to Automated Education Handbook.

Journal of Educational Data Processing

Journal of Programmed Instruction

NSPI Journal (National Society for Programmed Instruction)

Programmed Learning and Educational Technology

TO THOSE WHO ASSISTED

We thank you for your cooperation and participation which made this program possible.

The following members of Ravenswood City School District, East Palo Alto, California:

John Minor, Superintendent

William Rybensky, Principal, Brentwood Elementary School

The First Grade children of Brentwood School

Karl R. Anselm, Coordinator of School Affairs, Stanford-Brentwood CAI Laboratory

Program Guest:

Dr. Richard C. Atkinson, Professor of Psychology, Stanford University; Director, Stanford-Brentwood CAI Project in Reading.

Publishing Companies and Institutes:

Institute for Mathematical Studies in the Social Sciences (IMSSS)

International Business Machines (I.B.M.)

Responsive Environments Corporation (R.E.C.)

words in color

" even if i don't know the names of my colors, i can still learn to read. "

3

Chapter 3

WORDS IN COLOR

Recommended Reading

Fry, Edward. "New Alphabet Approaches." First Grade Reading Programs. (Edited by James F. Kerfoot.) Newark, Delaware: International Reading Association, 1965. pp. 72-85.

Heilman, Arthur W. Principles and Practices of Teaching Reading. Second edition. Columbus, Ohio: Charles E. Merrill Books, Inc., 1967. pp. 125-126.

A Point of View

Words in Color is one of a growing array of approaches to beginning reading instruction. Like other approaches, it has both proponents and opponents. Six years have passed since its introduction in the United States, yet, the very few research studies completed to date are quite inconclusive and invite much deeper questioning. (This questioning and need for further research applies to many other new methods and materials as well.)

Guy Bond (14) reported the results of the national first grade study in which twenty-seven different approaches to beginning reading instruction were examined, and to some extent, were compared with each other. Words in Color was not one of those studied. Bond's summary may serve as a cautious introduction to the examination of Words in Color. He states:

> "No one approach in beginning reading instruction is so outstanding that it should be used to the exclusion of others. The effectiveness of any approach is increased by use of techniques from other approaches. Any given approach produces better results than do others in one or several reading outcomes, (e.g., vocabulary, comprehension, spelling, word meaning) but not all. There is a greater variation between teachers than between approaches."

It is unfortunate that Words in Color was not among the methods studied.

The research to date on Words in Color is difficult to evaluate since there exist few systematic studies. Lillian Hinds, in her presentation (10) described three studies. The Milwaukee Study, the Dodd Study, and the Cleveland Study. The

Milwaukee Study should be skeptically examined. There was no control group. How well might these adults have learned to read with other methods of instruction? The teacher variable apparently was not controlled. The validity of the IQ's reported on the students is highly suspect. Little credence can be given to the scores for two reasons: (1) the subjects are described as coming from disadvantaged backgrounds, and (2) typically, any subject poor in reading is handicapped on most intelligence tests. The "rule of thumb" used to measure gains is also to be questioned. Hinds attempts to treat 30 hours of instruction as though it were but six full school days, then states that six days is about .03 percent of a school year. Hinds then proceeds to make a mean comparison using the derived percents. Based on classroom instruction of one hour of the school day devoted to reading represents not six days, but 30 days or one-sixth of a school year.

The second study cited, the Dodd Study, does not report the control of two crucial variables; teacher competency and the mental age differences between experimental and control groups. The cases reported at the end of second grade are based on only 19 cases per method. What happened to the rest of the children? Which children were "lost" in each group--the high or low achievers? How much faith can be put into conclusions based on so small a sample and with such minimal information about the sample?

Hinds intersperses her report of research with glowing testimonials. In the absence of research, opinion reigns. Many of the enthusiastic testimonials given to this method as cited by Hinds are typical of testimonials given to many new methods in advance of bonafide research. They are strictly opinion, unsubstantiated by even the simplest of accepted research designs in education. They are of little value to a researcher in attempting to search for improved methods and practices.

Dr. Hinds then proceeds to describe her own research. In commenting on her own study, she presents a more complete and detailed description of her investigation with the Cleveland adult illiterates. The major procedures followed by teachers are carefully and concisely described. Yet, additional questions appear to be in order:

1. How does one define an adult illiterate? Below what grade level of reading achievement is one considered to be illiterate? And how do we define "a functional illiterate"?
2. Are the statistical results based on <u>all</u> 37 contrast and <u>all</u> 33 experimental subjects? Which conclusions are based on the performance of 18 subjects? IQ scores are reported on less than one-half of the contrast group and color blindness test scores are available on only two-thirds of the contrast group.
3. What were the criteria for the selection of the 18 subjects who comprised the descriptive approach?

Other fragmentary reports on the use of Words in Color have appeared from time to time in lesser known journals and news letters. Estelle Harris (7) wrote enthusiastically about this method after experiencing success with 11 elementary school children. She says: "After two and one-half hours of instruction per week for 22 weeks with only the 'Words in Color' method, these pupils showed a gain in reading of six months to one and one-half years." Miss Harris was simply reporting an action research study which she conducted. Her very inspiring article had a very large reading audience, (NJEA Review), and, this method, to the average classroom teacher sounded extremely promising. No doubt many other teachers would love to jump on the bandwagon. This perhaps was the prime motivating factor in Fry's critical letter to the Review concerning Harris' research and Words in Color. In part he states:

> "Recently, I bought a copy of the New York Herald for April 15, 1865 (the day Lincoln died) and it contained a full-page advertisement for a liniment backed up by about 50 testimonials. It is indeed amazing that this liniment is no longer being sold because there are testimonials which state that it will cure sore throat, stiff knees, headache, and numerous other ailments (poured in bath water, it aids pimples and promotes sleep). One should not overlook that it is also very beneficial for many ailments of horses and mules. Last but not least, I noted that one of the testimonials was signed by an M.D.
>
> If there is any analogy for the teaching profession, I leave it to your readers." (4)

This verbal exchange is cited as an example (there are many others) of the conflict that comes about when new departures in reading are reported. In evaluating any new program or approach to reading, we cannot reach even tentative conclusions until the method has had a fair trial. Words in Color as a method of teaching reading has not been subjected to rigorous research. Since there is little or no hard data, we must fall back on other means of evaluating this method. We must do it fairly.

These questions we must seek to answer:

1. Is the method educationally and psychologically sound?
2. Does it incorporate what are considered to be sound learning principles in the teaching of reading?
3. Is it superior to other methods?
4. Is it efficient, effective and economical?

McKee and Durr (12) have written about questional attitudes and ideas inherent in the use of both Words in Color and the Initial Teaching Alphabet. The following four statements identify the most important of the questional matters they cite:

1. "A denial of, an unwillingness to capitalize on, or at least a failure to recognize the simple fact that the pupil already knows the pronunciation of each strange word and that the only thing he does not know and needs to find out is which of the many words familiar to him in spoken form is the one represented by the strange printed form.

2. "The notion that the pupil's task in unlocking a strange word consists of figuring out the pronunciation of the word and that instruction in beginning reading includes teaching him how to pronounce the words he encounters.

3. "The belief that in order to unlock a strange word the pupil needs to know well each letter-sound association represented in the word, and that he should be taught to unlock each strange word by sounding it out through the use of most if not all of the associations represented therein.

4. "The notion that what the pupil could be taught profitably about letter-sound associations for vowels as a part of instruction in spelling is also what he needs to know about those associations in order to do well in beginning reading."

Fry (5) also has stated his opinion of Words in Color:

> "The memorization of the 47 different sounds with their corresponding colors, as well as the 270 letter combinations which commonly are used in writing these sounds, appear at least on the surface to be the height of a mechanical memorization approach to beginning reading. Demonstrations put on by the publisher managed to be interesting and lively, but as yet, research proof is lacking for the superiority of this method over any other."

The problem and the question of how the color-blind or color-weak child functions has yet to be fully answered. Many educators are concerned with this aspect of Words in Color. Perhaps the comments of Dvorine, an optometrist, will shed some light on avenues of possible future research concerning what he terms "color discrimination" rather than color-weak or color-blind. Dvorine (3) observes:

> "Sometimes we encounter a better-informed person who perceives the problem as a simple inability to see red and/or green, and we must tell him, with polite regret, that he, too, is wrong.
>
> It just is not that simple. He who can see only black, white and gray--remaining blind to red, green or both--is very rare indeed.
>
> Yet an estimated ten percent of all American men suffer a more or less discriminatory confusion in their ability to isolate and identify the approximately 165 tints or color variations ranging across the visual spectrum....
>
> What it all commonly amounts to, then, is not so much a blindness as a confusion. The colors can perhaps be seen fairly clearly when alone, but when a color is placed adjacent to others, or even to various shades and tints of itself, the feat of matching, mixing, and identifying is apt to be beyond the capacity of those suffering from a color discrimination deficiency."

The following tentative answers to these questions are based on my background of teaching and research in reading. Although the suggested answers are open to argument and rebuttal, until conclusive evidence is offered, I will stand on the following:

1. The method has not proven to be superior to any other method of reading instruction.

2. This method, alone, or in combination with other methods has not proven to be superior to other approaches.

3. This method, when used with remedial readers has not proven to be more effective than the combination of methods generally accepted as the foundation of a sound remedial reading program.

This position is supported by others who have studied the method or aspects of it.

Cautions:

Not to be overlooked is the fact that how a teacher uses this method may be more important than the method itself.

The problem of color blindness and Words in Color may be grossly underestimated. Dvorine (3) estimates color blindness to be ten percent of the population, whereas, Gattegno (6) suggests that it is less than five percent. Gattegno (6)

further suggests that completely color-blind children "will be able to benefit from the logical and systematic presentation of the signs of the English Language." If this be true, may it not also follow, that the color may not be of consequence at all, but rather, the logical and systematic letter and word groupings are more important than, for example, the use of color-coded letters?

It must also be noted that children have learned and do learn with this method. Or perhaps, and more likely, this method plus a dedicated, motivated, interested and highly competent teacher (who also utilizes or borrows many elements of other methods) is the key ingredient.

WORDS IN COLOR

From the Publisher's Material and Program

Author: Caleb Gattengo
Publisher: Xerox Corporation

This unique program color codes our standard alphabet in such a way that one color always represents one sound--regardless of its spelling. The pupil does not grow dependent upon color because, from the beginning, he also reads in black and white. In this way, there is immediate and constant transfer of the sounds and their symbols regardless of color.

This reading and writing approach is for beginning readers and for children and adults who have not learned to read and write by other methods. On the average, most young learners can master the program in 35 to 40 lessons, or in about 8 weeks. Most adults can learn to read by this method in approximately 20 lessons.

How Color is Used

Each of the 47 sounds of English is printed in a distinctive color on wall charts. A total of 280 signs, composed of single letters or groups of letters, are colored according to how they sound in a given word. Thus, color is used to make English phonetic without in any way changing traditional spellings.

A sound is always represented by one color--regardless of its spelling. If it is the short sound of a, it is white whether it is in pat or laugh. Children use these color clues to help them fix the image in their minds.

From the beginning, the pupil writes and reads in black and white each colored sign that he is introduced to so that there is immediate and constant transfer. Since he carries the images of

these signs in color in his mind, the pupil can evoke and revoke the images if he needs them for reading or writing. Thus he is not dependent on printing in color.

Spelling is considered an integral part of the English language to be read and written as the child records what is spoken. Toward the end of the program the pupil learns the names of the letters.

How Words in Color Differs from Other Methods

From phonetic methods:

Words in Color keeps the traditional letter shapes (and spellings) of the English alphabet, using color only to identify sounds.

Confusion between the sounds of letters and the traditional names of letters is avoided by withholding letter names until the end of the program.

Learners do not sound out letters since consonants are not sounded by themselves but only with vowel sounds. Thus, pupils "sound out" words or syllables as they are actually pronounced.

From sight or look-say approaches:

Words in Color does not depend on the learner's memorizing the whole word with no awareness of its sound parts.

Nor does meaning depend on context or picture clues that may lead to distorted meanings, to guessing, or confusion. Meaning comes as the pupil discovers that the sound of the written words are those of words he already uses or can use.

From linguistic approaches

Words in Color introduces learners rapidly to sounds and their spellings so that pupils can immediately begin to put them together in words and meaningful sentences. Thus, the whole of their spoken vocabulary and much new vocabulary is quickly at their disposal in both reading and writing.

The Materials

For the Teacher:

Backgrounds and Principles--describes the approach, how it originated and the principles of learning on which it is based.

Teacher's Guide--Describes the teaching methods with detailed suggestions for the content and sequence of lessons.

For the Entire Class:

- Charts 1 to 21 (colored)--progressively introduce the sounds of English, beginning with the most regular spellings and proceeding through virtually all the regular and irregular signs of the language.

  Phonic Code (8 charts in color)--a systematic organization of the signs (spellings) occurring in English; 4 charts present the vowel sounds with their varied spellings; 4 charts present the consonants with their varied spellings.

  Word Cards--introduce words representing different parts of speech. Each part of speech is printed on a card of a special color. By putting words together into sentences, learners discover the structural elements of complete sentences.

For Each Learner:

Book 1--introduces the learner to five vowel sounds (short --a, u, i, e, o--and three consonants--p, t, s, s(z)--and the words and sentences that can be made by combining these sounds and images. Book 2--acquaints the learner with the regular spellings of vowels and consonants and with many examples of words and sentences. Book 3--enables the learner to read and write the irregular signs of the sounds in the Phonic Code.

Word Building Book--progressively introduces the sounds of English until the entire Phonic Code has been presented.

Book of Stories--a collection of stories to give pupils practice in continuous reading after they have completed Book 2.

Worksheets 1-14--enable pupils to manipulate the language they are learning by providing challenging exercises based on class work, on Books 1, 2, 3 and on the Book of Stories.

Intellectual Games Motivate Learning

Through visual dictation--the teacher points rapidly to words arranged in random order on the wall charts, and forms numerous sentences. The pupil learns to read silently and can then give the whole sentence orally, which ensures comprehension.

In the game of transformations, the learner's skill with the language is stimulated and reinforced when he performs the operations of addition, reversal, substitution and insertion upon sounds and groups of sounds:

Groups of sounds

at ---------by addition becomes--------pat
tap--------------reversal--------------pat
pat------------substitution------------pet
pet-------------insertion-------------pest

Group of words

stop----by addition becomes-------stop pat
stop pat-------reversal-----------pat stop
pat stop-----substitution---------pat step
sit pat-------insertion---------sit up pat

For additional information on Words in Color, write to:

Xerox Education Division
Division of XEROX Corporation
600 Madison Avenue
New York, New York 10022

To Talk Over With Your Colleagues ■ ■ ■

1. How can Words in Color help a child's spelling ability?

2. In what ways are Words in Color and the Initial Teaching Alphabet alike? In what ways are they different?

3. How do you think this method will work with children who have failed to learn with other methods?

4. How can this method be integrated with another approach you currently use?

REFERENCES AND SELECTED BIBLIOGRAPHY

1. Dean, J. "Words in Color." The First International Reading Symposium. (Edited by John A. Downing.) London: Cassell. New York: John Day, 1966.

2. Dodds, William Garrett Jr. "A Longitudinal Study of Two Beginning Reading Programs: Words in Color and Traditional Basal Reader." Abstract: Dissertation Abstracts 27; No. 12, 1967.

3. Dvorine, Israel. "What is Color Blindness?" Education 83: 174-178; November 1962.

4. Fry, Edward. "Letters to the Editor." NJEA Review 40:3 3; November 1966.

*5. Fry, Edward. "New Alphabet Approaches." First Grade Reading Programs. (Edited by James F. Kerfoot.) Newark, Delaware: International Reading Association, 1965. pp. 72-85.

6. Gattegno, Caleb. Words in Color Teachers Guide. Chicago: Learning Materials, Inc., 1962.

7. Harris, Estelle. "Words in Color." NJEA Review 40:2 30-31 October 1966.

*8. Heilman, Arthur W. Principles and Practices of Teaching Reading. Second edition. Columbus, Ohio: Charles E. Merrill Books, Inc., 1967.

9. Hinds, Lillian R. Evaluation of Words in Color or Morpholo-gico--Algebraic Approach to Teaching Reading to Functionally Illiterate Adults. Unpublished Doctoral Dissertation, 1966.

10. Hinds, Lillian R. "Studies in the Use of Color." A Decade of Innovations; Approaches to Beginning Reading. Proceedings of the Twelfth Annual Convention. Part III, Vol. 12. (Edited by Elaine C. Villeck.) Newark, Delaware: International Reading Association, 1967. pp. 66-75.

11. Jones, J. Kenneth. "Colour as an Aid to Visual Perception in Early Reading." British Journal of Educational Psychology 35: 21-27; February 1965. A discussion of Colour Story Reading.

12. McKee, Paul, and Durr, William K. Reading: A Program of Instruction for the Elementary School. Boston: Houghton Mifflin Co., 1966. pp. 133-134.

*Also found under recommended reading.

13. Murphy, Helen A. and others. "The Spontaneous Speaking Vocabulary of Children in Primary Grades." Journal of Education 140: 2; December 1957.

14. Weber, George. "The Reading Reports at Boston: Fiction Versus Fact." Council for Basic Education Bulletin 10:4 1-3; December 1965.

TO THOSE WHO ASSISTED

We thank you for your cooperation and participation which made this program possible.

The following members of Fremont Unified School District, Fremont, California:

Dr. William J. Bolt, Superintendent

Thomas Lord, Director of Reading

Keith Medeiros, Principal, Blacow School

Harriett Zozel, First Grade Teacher and her class, Blacow School

The following members of the San Rafael City Elementary and High School District, San Rafael, California:

John F. Plank, Superintendent

Dr. Eve Geiger, Director, Instructional Materials Center

Webster J. Smith, Principal, San Pedro Elementary School

Ruth Owens, First Grade Teacher and her class, San Pedro Elementary School

Publishing Companies:

Xerox Corporation

initial teaching alphabet

"our 26-character alphabet does a poor job of representing the 40-odd phonemes of english speech. many people have vigorously advocated one or another system of reform.

george bernard shaw

4