Programmed Instruction in the Beginning Teaching of Reading

Claudia L. Richardson
PROGRAMMED INSTRUCTION IN THE BEGINNING

TEACHING OF READING

(TITLE)

BY

Claudia L. Richardson

PLAN B PAPER

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE MASTER OF SCIENCE IN EDUCATION
AND PREPARED IN COURSE

Education 469

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY,
CHARLESTON, ILLINOIS

1966

YEAR

I HEREBY RECOMMEND THIS PLAN B PAPER BE ACCEPTED AS
FULFILLING THIS PART OF THE DEGREE, M.S. IN ED.

August 2, 1966

ADVISER

August 5, 1966

DEPARTMENT HEAD
### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>4</td>
</tr>
<tr>
<td>Procedures</td>
<td>4</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>5</td>
</tr>
<tr>
<td>II. DEVELOPMENT AND ORGANIZATION OF PROGRAMMED INSTRUCTION</td>
<td>8</td>
</tr>
<tr>
<td>Programmed Instruction</td>
<td>8</td>
</tr>
<tr>
<td>Programmed Reading</td>
<td>12</td>
</tr>
<tr>
<td>McGraw-Hill &quot;Programmed Reading&quot;</td>
<td>20</td>
</tr>
<tr>
<td>Experimental Studies</td>
<td>27</td>
</tr>
<tr>
<td>III. IMPLICATIONS OF PROGRAMMED READING</td>
<td>34</td>
</tr>
<tr>
<td>Contrasting Programmed Reading with Basal Reading</td>
<td>34</td>
</tr>
<tr>
<td>A Changing Role for the Teacher</td>
<td>40</td>
</tr>
<tr>
<td>Proponents of Programmed Reading</td>
<td>47</td>
</tr>
<tr>
<td>Critics of Programmed Reading</td>
<td>50</td>
</tr>
<tr>
<td>IV. SUMMARY AND CONCLUSIONS</td>
<td>53</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>56</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Children are growing up in a world that differs radically from the past. Societal pressures have subjected children to learn more thoroughly, broadly, and for longer periods of time.\(^1\) Each year our school population is increasing, thus overcrowding our already crowded schools. Harassed teachers are finding it difficult to impart the flood of knowledge which comes with each new invention. Since the advent of Sputnik, there has been an increased necessity of vigorous effort as a nation to maintain status, leadership, and improvement of our way of life. To meet these challenges, education is taking on seriousness of purpose through revision and expansion of curriculums.

Today children begin school with varied backgrounds and abilities. Reading instruction should therefore recognize that all children do not and cannot learn to read using the same methods of instruction. Today a widened range of reading levels and abilities is present at the onset of school experience and must be considered if we are adequately to meet reading needs.\(^2\)


Gray concluded the following changes in current reading programs are essential if reading is to be improved:

1. There must be changes made in upgrading reading programs in harmony with expanding needs.
2. Teachers are going to have to pursue basic reading in content field.
3. There must be an increasing and effective use of audio-visual aids, teaching machines, and programmed instruction.

Martin L. Maehr states that programmed learning is fast becoming an almost irresistible alternative to many current educational methods, and educational processes will have to be redesigned to meet the challenges of the present and future.

In five years, programmed instruction has spread from zero to fifteen percent of our school systems, and programmed instructional methods and booklets are now being offered in sixty percent of our teacher education institutions. During the past year, the number of programmed textbooks marketed by American publishers has more than tripled. Programmed booklets are being used by over a million American pupils. In 1962 and 1963, the use and making of programs spread to many parts of the world. England, Japan, Germany, France, Scandinavia, and the Soviet Union have shown lively interests in the method.

---

The acceptance of programmed instruction in the field of education has brought forth the development of programmed instruction in many areas of the curriculum. To meet individual needs and differentiation of reading levels and abilities, reading has been programmed. Programmed instruction in the teaching of reading is called "programmed reading." Widespread attempts to program could hardly fail to result in clearer general understandings of the components of reading skills and sequences of teaching them. A greater emphasis on revision and improvement of educational methods and curriculum has helped to develop an individualized method of teaching reading called programmed reading.

STATEMENT OF THE PROBLEM

The purpose of this study was to study and summarize current research and writings concerning programmed learning and programmed reading.

PROCEDURES

The data for this study were gathered from several sources. Included in those sources were current periodicals, United States Government Bulletins, pamphlets published by McGraw-Hill, books related to programmed instruction and reading.

The first step in the study was to study and summarize:

1. Programmed instruction.
2. Programmed reading.

The second step was to contrast programmed reading with the basal reading method.

The third step was to summarize the views of proponents and critics concerning programmed reading.
DEFINITION OF TERMS

_Programmed Reading:_ Jane Levine interprets programmed reading as being a planned sequential program in reading instruction based on materials which are broken down into small, discrete units and arranged in a sequential order that tests each unit, minimizes error, and reinforces correct responses. An example of this is the McGraw-Hill "Programmed Reading" Series.⁸

_Programmed Instruction:_ Wilbur Schramm defines programmed instruction as a "program" that takes the place of a tutor for the student, leads him through a set of specified behaviors designed and sequenced to make it more probable that he behave in a given, desired way in the future, and gives immediate knowledge of results as well as reinforcement for each correct response.⁹

_Teaching Machine:_ Programs of questions and answers, problems to be solved, or exercises to be performed which have the following characteristics:

1. The teaching machine presents information either as statements, questions, or paired sets of abstract symbols to be associated for testing purposes.

2. It requires a response.

---


⁹Wilbur Schramm, op. cit. p. 15.
3. The learner compares responses with predetermined correct responses.

4. It provides immediate knowledge of results.

5. The teaching machine programs information according to a set of rules.

6. It allows for variability in the information presentation rate.

7. It combines learning and its measurement into a single set of co-ordinated operations.

8. The teaching machine automatically rejects the correctly responded items so that the learner sees a smaller number of items from trial and error.  

   Basal Reading Program: Programs aimed at the systematic development of reading ability by means of a series of books or other materials especially suitable for each successive state of reading development.

   Reading Level: The level of achievement reached by a reader, generally defined in terms of grade or stage of growth, for example, the reading readiness level, the first-grade level, etc.

   Individualized Reading: "The elimination of systematic instruction using basal readers, using individualized reading in a

---


12 Ibid.
variety of reading materials as the core of method rather than as a supplement.\(^13\)

\(^{13}\) May Lazar, quoted by Frank Nania, "Individualized Reading: Pro and Con," Grade Teacher, LXXVII, (April, 1961), p. 13.
CHAPTER II

THE DEVELOPMENT AND ORGANIZATION
OF PROGRAMMED INSTRUCTION

PROGRAMMED INSTRUCTION

Programming methods in the initial phase of development and originators of programmed instruction have helped provide and develop procedures and techniques which are presently being used in education.

One of the early educators, Socrates, developed a program for Geometry, which was recorded by Plato in the dialogue, "Meno." It was Socrates' habit to guide his pupils to knowledge by conducting them conversationally along a path from fact to fact and insight to insight.14 The similarity between his method and the contemporary use of programming is easy to observe.

Five hundred years ago, Comenius tried to specify a kind of education that would be active - that would cause a pupil to "learn more and the teacher to teach less."15

The tutorial method which was perfected by the colleges of the Great English Universities and taken up by many of this country's colleges in one form or another is another example of the early use of programming techniques. The continuous exchange of questions and

15Ibid., p. 106.
answers between the tutor and his pupil, the unfolding of information and explanations, and the constant selection of new materials on the basis of the pupil's mastery of what has gone before is indeed a forerunner of programmed instruction.16

Pavlov, Thorndike, Hull, and Guthrie were early demonstrators of different forms of response and reinforcement in a verbal program.

More recent programmed instruction is an adaption of a program which was first made public in 1926 by Sidney L. Pressey, psychologist at Ohio State University. Pressey recognized a device that informed a pupil immediately of success or failure would do more than test him, it would also teach him.17 He concluded that the pupil would proceed at his own pace. He designed several machines that automatically tested a pupil by presenting him with a series of questions keyed to multiple choice answers. The pupil selected the right answer by pressing a button and the machine moved on to the next question. If he was wrong, the error was tallied and he had to continue to choose until he had the right answer. The "industrial revolution in education," as he called it, failed to come about and in 1932 he announced that he was regretfully dropping further work on these problems.18 His machines had limitations that probably helped contribute to their failure.


17Schramm, op. cit., p. 106.

In 1957, B. F. Skinner, after laboratory experiments with operant behavior, developed a programmed course in human behavior called the "Linear Method of Programmed Teaching." It breaks a subject into small frames, or parts, with write-in answer blanks followed by correct answers. Skinner insists on a machine to control answers, so he has devised a prototype machine the size of a portable record player. The pupil pulls a lever to make a frame appear in a window. After answering the stimulus, the pupil pulls a lever to make the answer appear. The pupil is not to get wrong answers, so to strengthen reinforcement, the pupil is fed cues and gradually the cues are withdrawn. "Skinner argues that though the pupil must be continually tested, he must be kept continually right. Too many wrong answers mean the program must be rewritten." The ideal error rate is five percent with no higher than a ten percent rate. Skinner's operant conditioning theory places primary emphasis on overt observable responses of the learner, on external reinforcements which are contingent upon his response, and on small sequential steps.

Norman A. Crowder, while working with the Air Force, developed methods for training and teaching using programmed instruction called intrinsic programming. In this type of programming, a unit of material is presented and then it is followed by a multiple choice question. Large steps are given in cases of correct answers and smaller steps via a new approach result from incorrect answers. The material appears in the form of a "scrambled book." In Crowder's "scramble books,"

---

20 Ibid., p. 95.
one starts on the first page and then is sent scurrying to different pages of the book depending upon the answer given. This technique is also called branching and one of its leading attributes is that it is better fitted to individual needs than is Skinner's operant behavior theory.21

Because Skinner insisted on eliminating cheating, teaching machines provided the home for most early programming. Machines themselves do not teach, but the program which it embodies serves this purpose. Most educators agree that the external machine can be disposed of without affecting the actual program.22 Due to the cost of some teaching machines and much unfavorable criticism concerning mechanical teaching, the use of teaching machines per se has become secondary to programmed instruction in booklet form. Today, programmed instruction encompasses linear programming, intrinsic programming, and sometimes a composite of both. However, nineteen out of twenty programs now developed for commercial sales are based on the linear type of programming.23 There are very few experiments that make use of branching techniques which Norman Crowder advocates. Of the present research available, two out of five research experiments in programmed instruction done with college students use the intrinsic method, one in

---

21 Ibid., p. 95.


23 Ibid.
five adult or military samples use it, and one in eight elementary pupils use intrinsic programming. 24

To summarize, Sidney Pressey, B. F. Skinner, and Norman Crowder developed the basic principles of present day programmed instruction. They instigated the movement which we now call programmed instruction; it is, however, not a new approach to teaching. Rather it is an adaption of techniques and methods which began with the teaching of Socrates. Even though programmed instructional methods have been used throughout the history of education, there is still much confusion about teaching machines and programmed instruction and their places in the educational program.

PROGRAMMED READING

Changes in methods for teaching the beginner to read have occurred throughout the years. Today there are many different methods used in teaching reading. One of these methods is called programmed reading. Programmed reading is an individualized method for teaching reading. Individualization of instruction is not a recent development in reading but rather a revision of method which was used at the beginning of education instruction. Early reading instruction was taught by either a scribe, priest, tutor, or member of the family to the individual pupil. 25 Prior to 1800, individual instruction was combined with drill, memorization, and severe

\[24\] Ibid., p. 396.

discipline.\textsuperscript{26} Around 1840-1850, the trend was to teach reading by word instead of letters.\textsuperscript{27} The McGuffey Readers are credited with providing an impressive influence in reading in the middle 1800's. They were the first to adapt interesting reading materials to the child. The books were a clearly defined series with one reader for each of the six grades. Class grouping in terms of reading level was originated at this time. The early twentieth century brought forth P. W. Search of Peublo, Colorado, who developed the "Pueblo Plan." This was a plan for individual methods to help correct developing evils in class instruction.\textsuperscript{28} Following the "Pueblo Plan" for individualized methods, President F. L. Burk, San Francisco State Normal, prepared a course of study and methods of procedure for individualized instruction. Pupils worked, reported, and received individual promotion.\textsuperscript{29}

A follower of Burk, Carleton W. Washburne, Winnetka, Illinois, developed "The Winnetka Plan" of individual instruction. This system is self-instructing, self-diagnosing, with instructions, work-sheets, diagnostic tests, final tests organized into definite outlines prepared and distributed to pupils who then proceed at their own rate.

\textsuperscript{26}Ibid., p. 527.

\textsuperscript{27}Vera Slover, "Reading Then and Now," \textit{Educational Forum}, XXI (May, 1957), p. 413.


\textsuperscript{29}Ibid., p. 271.
and method. However, until 1950, interest in individualized reading as it is known today, was sporadic and inconsistent. Today education is trying to break ties with traditional approaches by establishing new scheduling, methods, and techniques to meet the need for individualized instruction.

Reading authorities are not in agreement concerning the success and future of programmed reading in the teaching of reading. William D. Sheldon asks two basic questions concerning programmed reading. Can reading be programmed and how should reading be programmed? According to B. F. Skinner, the father of programmed learning, all subjects can be programmed. Different subjects may require different techniques, but all subjects can be programmed.

Programmed reading has been developed through the efforts of psychologists, curriculum specialists, and teachers. It began as pure science research in the laboratory. According to Hilgard programmed reading has developed as follows:

STAGE I (Pure Science Research)

Step 1 (Not directly relevant). Research and investigation was conducted on animals operating in mazes, eyelid conditioning, and pursuit learning was examined.

30 Ibid.


32 Skinner, op. cit., p. 90.
Step 2 (Relevant Subjects Topics.) Research and investigation was conducted on humans through verbal learning and concept formation.

Step 3 (School Related Subjects and Topics.) Programming was investigated to see how it could be applied to math, reading, typing, etc.

Step 4 (Conducted first in the laboratory then in the classroom with a curriculum specialist.) Programmed reading is tested by a curriculum specialist on an experimental trial and error basis.

Step 5 (Tryout in normal classroom environment.) Classroom teachers tried out programmed reading with their class.

Step 6 (Advocacy and Adoption.) Programmed reading textbooks and manuals are prepared and teacher-training institutions adopt them.33

The development of programmed reading, according to Gertrude Hildreth, is based upon the psychology of reading. "Reading is a highly complex learning process because it requires discrimination of word forms both visually and auditory, thinking, and anticipating meanings expressed in words, essentially a puzzle-solving process."34

The organization of programmed reading is based upon the following:

1. It is a well-known fact that you cannot teach a child anything that he does not want to learn and children show varying degrees of interest in beginning reading.

2. In reading, getting the meaning is of utmost value and importance. Every exercise in which a child engages


matching words, seeing likenesses and differences in words, learning their differences, etc., must lead to comprehension of the printed page.

3. An experimental background is basic in learning to read. A good rule in teaching beginning reading is always to start reading with the things the child knows about, talks, and asks about, with materials that are related to things he can actually pick up, touch, and examine.

4. The child must do his own learning and learning to read is no exception to this general rule. The child who learns best experiments with the print before him, asks and responds to questions, and works hard in trying to solve a puzzle.

5. Learning to read requires forming habits which result in synchronizing a set of regimented, arbitrary eye movements with perception and interpretation. This requires hours of practice over a period of years, first to catch the trick, then to perfect it.

6. Learning to read requires essentially learning to attach meanings already known through conversation to groups of arbitrary letters representing words.

7. Perception is the mind's response to sensations received from the outside world. Without the capacity to perceive, the human mind would be unable to form associations with symbols and their meanings or to store up memories of word forms, to discover similarities and differences in word forms, a skill that is fundamental in reading and in learning to read.

8. No one learns anything so complex as the English reading without steady practice over a period of years.

9. Extensive research has shown that children often have difficulty in learning when disturbing emotional conditions and unfavorable attitudes stand in their way. Discouragement from failure in the early learning stages of reading is apt to have disastrous consequences because fear and anxiety tend to inhibit efforts to learn to read.
10. Individual differences show up whenever human beings at any stage of maturity set out to learn the same thing. Providing for individual differences in reading requires each child to progress at his level with feelings of accomplishment and satisfaction of his own efforts.35

The success of programmed reading will be dependent upon how well programs exemplify these principles. One of the most promising ways to improve reading instruction in the future will be to increase the quantity and quality of programmed materials.36

The following is a list and description of some present programmed instructional courses in the teaching of reading:

Publishers Company, Incorporated, have published a Teachall Multiple-Choice Teaching Machine Reading Course which covers 458 nouns. Each frame is on a separate piece of cardboard exposed in a simple multiple choice teaching machine. On the top half of the first frame is a picture of a box with the word "box" written below it. In the bottom half of the frame are three pictures each with a word beneath it. One of the words is "box". The child presses a button on the machine beneath the word "box," and a buzzer sounds. If the child chooses the wrong word, he hears nothing. The second frame has the same procedure but with a different word. This program is obviously of supplementary nature to increase or develop a child's vocabulary.37


Another program quite different from the above is a program published by Gracecarol, Bostivich, and Edward Fry, Consultant. It is designed in scramble book form whereby the student reads a bit of information, is asked a question, and is given possible answers. If he chooses the first answer, he is told to turn to page nine. If he chooses the second answer, he is told to turn to page eighteen. When he gets to page nine, he is told that his choice was wrong and why. He is then branched back to the original frame and instructed to read it again. This program is for Junior High level and is supplemental in nature. It is published by the California Test Bureau as a series loosely tied to their Achievement Tests. The Scramble books are designed to match such skills as reading interpretations, comprehensions, reference skills, and following directions. Its main purpose is to bolster up areas of weakness as shown by the achievement tests.38

"Steps to Better Reading," a Junior High level program, is written by Wilbur Schram, Herbert Patell, and George D. Spache. This is a programmed text requiring a written response blended with multiple choice items. It is a workbook type of exercise. It, too, is supplemental as it is designed to accompany Laurrante's edition of "Adventure in Literature Series."39

Vocabulary improvement seems to be a favorite of programmers, but most programs lack a sense of gradual progression and tend toward rote learning of isolated words. A programmed instruction series in

38Ibid., p. 81.
39Ibid., p. 93.
reading called "Words" by Susan Meyer Markle of Science Research Associates is good in that it meets programmed requirements and has a good sense of progression.  

"Vocabulary Enrichment," published by General Education, is a program presented on a roll of paper in a small plastic teaching machine. This program has no author's name, no report of tryouts and revisions, no proof of learning, no sequence, and little additional information. This type of program is considered very weak and probably of little value in the teaching of reading.

"How to Improve Your Reading and Vocabulary Growth," by Learning Inc., Willard Abraham, programmer for Coronet Instructional Films, is very good for Junior High level. It is brief having only 59 pages.

"Building Words," by R. Lipehene, and prepared by Honor Products Company, Bolt, Beranek, and Newman is a program for 7th grade and above. It has 200 frames that roll and fit into a small battery operated push button teaching machine.

"First Steps in Reading," a programmed reading primer for children who have not yet mastered the beginning steps in reading, by TMI Grolier, can be used with or without a machine. The child reads the frame to see if he can find the letter with the correct

\[\text{Ibid.}, \ p. \ 83.\]
\[\text{Ibid.}, \ p. \ 82.\]
\[\text{Ibid.}\]
\[\text{Ibid.}, \ p. \ 81.\]
sound, such as "buh" sound. The TMI Grolier people know programming but could use help on reading and phonics instruction. 44

A vocabulary building program by Alexander Schure is designed to be a permanently installed reading program in a cardboard box with a roller type machine. This program is designed for aspiring parents, but needs revision if it is to be in the best interests of good reading instruction. 45

"The Basal Progressive Choice Reading Program " by Myron Woolman, research psychologist, is to be used strictly for mentally retarded pupils. It is strong on reading readiness, but very crudely prepared. 46

**McGRAW-HILL "PROGRAMMED READING"**

At primary reading level there are various programmed instructional series on the market today. The most outstanding and perhaps the most extensive program at the present time is "Programmed Reading." 47 Dr. M. W. Sullivan and Cynthia Buchanan, along with a team of psychologists, linguists, and teachers began experimenting to discover a more scientific study of ways to teach reading in the early 1950's. Their research revealed many interesting and surprising facts concerning the teaching of reading. A new reading series developed from this research.

44 Ibid., p. 83.
45 Ibid., p. 84.
46 Ibid., p. 106.
In their research for new and different ways to teach reading, Dr. Sullivan and his associates made several assumptions concerning teaching children to read:

1. That somebody had asked the children what they wanted to read about.

2. That stories and vocabularies were based on the child's interests and needs.

3. That the art style used in the reading materials was based on children's preferences.\(^4^8\)

Dr. Sullivan in tracing the history of reading found the following information concerning children's interest in reading and reading materials. Children do not want to read about daddy, mommy, teacher and other usual characters included in their story world.\(^4^9\) They do not want a world to begin with; they want a certain number of objects and direct identification of these objects. In tracing the history of vocabulary word lists used in the reading materials, Dr. Sullivan found that every reading series was based upon the same rather rigid word lists. Stories and vocabulary were based on preceding readers, and this went continually backward to very early books such as the McGuffey Readers. Concerning story illustrations, children prefer simple uncluttered types of line drawing done in bold primary colors. In the drawing they wanted only the pictures of the word they were learning rather than an entire picture.\(^5^0\) As a result of this research, Dr. Sullivan and his associates set out to design

\(^{4^8}\) M. W. Sullivan, "What Can Children Teach Us About the Teaching of Reading?" McGraw-Hill Book Company.

\(^{4^9}\) Ibid.

\(^{5^0}\) Ibid.
a reading program which met the needs and desires of children. The program was structured around their attempt to:

1. generate materials that were meaningful.

2. tie each sentence in the beginning readers to a picture and to have that picture show precisely what the sentence was saying so that you had reference in semantic terms for each word. (If there is a noun in the sentence, there is a picture of it. If there is a verb in the sentence, that thing is happening in the picture, and there is nothing else in the picture.)

3. in determining vocabulary, the children picked out the kind of words they wanted. Child chosen vocabulary list. (The majority of these words happened to be words for animals and objects.)

4. teach vocabulary through the use of picture clues, linguistics, and phonetic analysis rather than sight word methods.

5. organize a consistent order-sequence for the child so he could build from simple to complex reading abilities.51

"Programmed Reading" is a basic reading program for primary grades which combines modern advances in structural linguistics, educational psychology, and programming techniques. The linguistic approach is based on a careful and precise analysis of language in which all sound-symbol groups are classified and organized for the most effective learning sequence.52 Initially the child has to deal with a few letters and associate one sound for each letter. He first learns the sound values classified as regular and each sound is

51 Ibid.
carefully developed in a gradual sequence. Sight words are held to an absolute minimum to avoid confusion.

The phonics program uses the traditional 26 letter alphabet and begins with only a very few sounds which are presented in a gradual manner and always in the context of words and sentence patterns. The format of "Programmed Reading" is based on workbooks which initiate a "pre-reading program" that prepares the child for the linguistic progression in the programmed readers which are in workbook form. After this initial training in pre-reading, the child begins working independently in his programmed readers. The readers are written in carefully-developed sequences, in which sound-symbol groups and sight words are introduced gradually and completely mastered before proceeding to new ones. Reading skills are built into each frame. Reading comprehension, phonetic analysis, structural analysis, word attack, analysis skills, and comparison of ideas are written in problem solving sequences. Illustrations are simple and help the child comprehend the meaning of the sentences. The first series of readers, 1 through 7, equivalent of first grade reading series, have a 400-word vocabulary. The second series, 8-14, have a 1200 word vocabulary. They are the equivalent of a second grade reading series. Every 50 frames throughout each programmed reading book includes a series of test frames so the teacher can keep an accurate check of the progress of each child. These tests are carefully devised to check his comprehension of the concepts covered in the preceding frames and reveal any weaknesses the child may have in material covered up to that point. The tests provide a written record of each child's progress and pinpoint
quite accurately in just what areas he may need additional help.

Both series I and II contain test booklets to test mastery of each series. Each booklet in the series contains a seven page end-of-book test. The format of Programmed Reading is designed in such a way so that:

1. Each child may progress in accordance with his ability level.

2. Since all the children are engaged in reading concurrently, the teacher has the time to help individual students.

3. Since the three reading groups are eliminated, the children are able to have a longer reading period.

4. The vocabulary is so controlled that the children are able to sound out each new word they meet in their workbooks.

5. Punctuation is taught as a part of the reading program.

6. The pupils are able to write, spell, and sound out each word they are able to read.

7. The child assumes more responsibility since he checks his own work, with the exception of the tests.

8. The material presented is interesting and challenging to the children. As the books progress, more factual material is presented in longer stories calling for greater comprehension.

9. The average child makes between fifty and one hundred correct, written responses in a half-hour reading period.53

In order to find out the qualities of Programmed Reading, pilot studies were initiated in 174 schools with 2,167 students.

53Ibid., p. 2.
participating. According to their teachers, more than one half of these students had reading problems. On May 14, 1964, a questionnaire concerning the use of Programmed Reading was mailed to each school making a pilot study to determine student and teacher responses to the program and to learn what reading achievement had actually resulted. Twenty-six schools made use of full-class tryouts comparing the reading growth of Programmed Reading class (experimental class) to the reading growth of the regular class (control class) and in each case where test scores were given, the experimental class excelled the control class.

In answering the questionnaire, Janet M. Goss, principal, Cupertino, California, stated the following: "This school made a thorough tryout of Programmed Reading in the 1963-64 school year. We feel that our results have been excellent. Our children like to read as evidenced by the use they make of our school library at noons and recesses. . . The high scores made by our first graders on the Language section of the C. A. T. test given in May we attribute to the grammar which is an integral part of the Sullivan Program. . . Also our first graders appear to the staff and their parents to be much more confident in their approach to creative writing, dictation by the teacher, spelling tests, and they approach all testing situations with amazing self-confidence.

---

54 Edward L. Sparleur, "Test Results and Reading Growth in Programmed Reading," Report on the Use of Programmed Reading during the School Year, 1963-1964, p. 3.
55 Ibid.
In answer to the question, "How do you feel programmed reading compares to the basal reading program you formerly used?"
Betty Lou Cole, Principal, Columbian Grade School, Mattoon, Illinois, stated: "The children who were using the Programmed Reading materials, I felt, were more capable of attacking new words and could work more freely and confidently in a new situation than the children who used the basal reading program. I believe they had developed a stronger phonics background than the others."57

In answer to the question, "Do the illustrations and general manner of presentation appeal to the student?" Sister M. Pius, Principal, Dayton, Ohio, states: "The illustrations are attractive and amusing. Many times the children would smile to themselves as they worked the pages. Also, the illustrations were beneficial in helping the child determine the content."58

Ray I. Powell, Elementary Director, Windom, Minnesota, had this to say concerning Programmed Reading in a typical first grade class—heterogeneous in assignment. "Excellent! All students are enthused, all achieved remarkably well, no one classed as a slow student, motivation toward materials very positive and as much so the last week as the first week, no non-readers, teachers completely 'sold', and perhaps most important of all, we have observed no negative aspects developing in students in their attitude toward reading and learning

57Sparleur, op. cit., p. 22.
58Ibid., p. 29.
which of course we have always had in the traditional setting, particularly in the slow groups. Although we have had a strong program in these respects—linguistic teaching of phonics and vocabulary—we feel that Programmed Reading is equal or superior to what we have been using. Pupil's reading-growth rate was much above our expectations.\textsuperscript{59}

In summary, Programmed Reading, designed by Dr. M. W. Sullivan and Cynthia Buchanan, and associates for McGraw-Hill Book Company is written to fit the child's interest in vocabulary, content, and illustrations. It is an individualized program based on careful and precise analysis of language and is written in programmed instructional form.

**EXPERIMENTAL STUDIES**

In 1964, more than 26,000 first grade children and over 800 teachers joined in a one-year experiment sponsored by the United States Office of Education.\textsuperscript{60} The purpose of the study was to obtain definite answers concerning the best ways to teach children to read.

Programmed Reading is being tested throughout the United States on an experimental basis. Most of those reporting on Programmed Reading provide a strong basis for establishing it in the place of a basal reading series. (Perhaps this can be explained by the absence of articles by teachers who were not successful in using the program. If a person has poor results, it seems reasonable he will not be anxious to publicize it.)

\textsuperscript{59}Sparleur, \textit{op. cit.}, p. 10.

\textsuperscript{60}Flynt, \textit{op. cit.}, p. 2.
Ethel Thomas, a first grade teacher in North Vernon, Indiana, describes a program in her first grade class. The program described is McGraw-Hill "Programmed Reading." Her evaluation for the program recommends having individualized instruction to help remove the feeling of inadequate meeting of group needs. Her results are summarized as follows:

1. All children were reading.
2. Their reading levels varied from beginning to fifth grade level.
3. The individual reading scores obtained on the Stanford Achievement ranged from 1.3 to 5.2.
4. Children enjoyed the program.
5. Teacher enjoyed the program as it offered a new concept as well as a new challenge.

Dr. Ann Jackson, first grade instructor at the Eastern Illinois University Laboratory School, Charleston, Illinois, conducted a first grade reading experiment for the 1965-1966 school year. The following is a newspaper account of an interview with her concerning Programmed Reading:

1. There are twenty-six youngsters in the experimental class and each is at a different reading level in the program.
2. The children are aware of the difference in reading levels, but are not concerned or frustrated because even the slowest-working student is credited with correct responses.

---

61 Sparler, op. cit., p. 5.
62 Ibid.
3. Since grouping by the very nature of the experiment is eliminated, a child does not face the group in which he is ignored, waited for, or encouraged to do what he may find impossible, but what others can do quickly with complete understanding.

4. The students are reading each at his own level, therefore, the teacher has the opportunity and time to help individual students.

5. Minute repetition and a step by step method of learning make it possible at test time to retrace and determine what is wrong when an incorrect response is given.

6. Children are reading from other books and experiencing little or no difficulty.

7. Children are also learning to write what they read and can dictate stories to each other.\textsuperscript{63}

At the St. Francis Xavier School, Kansas City, Missouri two experimental classes of ten pupils each - in the first and second grades - used McGraw-Hill "Programmed Reading" and were compared with control classes of eight and ten pupils using basal readers. Ten of the twenty pupils in the experimental group were considered remedial. Their results were as follows:

1. The experimental groups average reading test score, at the beginning of the year Stanford Achievement Primary Battery was 1.56 for grade one and 2.61 for grade two as compared with 1.50 in the control group using a basal reading text for first grade and 2.87 for second grade.

2. The average end-of-the year Stanford Achievement Primary scores for the experimental group were 2.19 for first grade and 3.30 for second grade.

\textsuperscript{63}Interview with Dr. Ann Jackson, "E. I. U. Laboratory School Conducting First Grade Reading Experiment," The Charleston Courier News, February 2, 1966, p. 1.
3. The average reading growth per group in months, based on a ten month school year, was .63 for first and .69 for second in the experimental groups. It was .39 for first and .28 for second using the basal readers.

In Windom, Minnesota, Ray I. Powell, Elementary Director for the district, describes a program in a typical first grade class heterogeneous in grouping using Programmed Reading:

1. No one is classed as a slow student.
2. Motivation towards materials very positive.
3. No non-readers.
4. No negative aspects developed in students' attitude toward reading and learning.
5. This material is equal or superior to what has been used.
6. Average range of growth rate based on a ten month school year was .96.

Most studies concerning programmed reading have compared it with basal readers; however, other kinds of experiments have been written. In 1962, McNeill did an experiment which had for its subjects 132 kindergarten children, 91 of whom were later studies as first-graders under female teachers. Under programmed instruction in word recognition, the boys in this sample did significantly better than the girls; under female teachers in the classroom, the girls did significantly better than the boys. The author suggests that perhaps female teachers in the early grades fail to adjust themselves or

64 Sparleur, op. cit., p. 11.
65 Ibid., p. 10.
their teaching procedures as well to the traits of boys as to those of girls. McNeill raises the possibility that greater use of programmed instruction in the early grades might be beneficial to boys and that a study of the features of auto instruction might help in developing teacher behavior more appropriate for boys.

In 1958, G. W. Falconer wrote a doctoral dissertation at the University of Illinois on "A Mechanical Device for Teaching Sight Vocabulary to Young Deaf Children." His subjects were eight profoundly deaf children. He developed a program to teach 15 nouns taken from a standard primary wordlist. The teaching program for use in the machine was developed in 90 frames. This machine was a drum housed in a box which held 12 cards, only one which showed through a window at one time. It was pretested on 43 children with normal hearing. Fifteen words were learned by eight deaf children. The children worked five minutes a day for ten consecutive school days. Immediate comprehension was high after two weeks, testing revealed nearly perfect retention.

In 1963, Henry T. Lippert, and L. M. Stolurow did an experiment with a teaching machine and programmed instruction in Special Education. The program was provided for 25 educable mentally handicapped public school children. They worked a program of "picturable nouns" - taught through the strategy of prompting trials followed by confirmation trials. A correction procedure was used in the 900-frame

\[67\] Ibid., p. 42.
\[68\] Ibid., p. 101.
program which was in an earlier study by Stolurow and Lippert. Binet Mental Age was not a significant predictor of the learning measure. It was, however, significantly related to retention. The subtest scores of the Illinois Test of Psycholinguistic Abilities were not heavily weighted in the performance on this learning task. This was interpreted to mean that the learning task does not demand high psycholinguistic abilities for success. Some psycholinguistic entry levels were significantly related to successful performance in recalling (but not recognizing) words taught and some were not. Those which were significant were the visual decoding, visual motor association, visual motor sequential, and the auditory vocal automatic abilities. Other psycholinguistic abilities were not heavily weighted or in some cases were negatively related. The length of the words (from three to nine letters) has not related to the ease of learning or to successful retention. The Peabody Picture Vocabulary Test was positively related to ease of learning, and a high score on this test was significantly associated with successful transfer to success after the withdrawal of the prompt under the confirmation teaching strategy. The relative number of prompting and confirmation trials did not seem to be as important in predicting learning as the total number of trials, regardless of the balance. 69

John D. McNeil in "Programmed Instruction as a Research Tool in Reading: An Annotated Case," experimented with the effectiveness of oral responding in program designed to teach reading. His sample

69 Ibid., p. 76.
was 188 kindergarten children and a program in elementary reading skills. The program was 700 frames and was a linear program. Oral responding (saying, rather than merely looking at the word) resulted in significantly greater learning. The oral response was particularly effective for children with lower Intelligence Quotients and resulted in more children wanting to read. For some reason males learned significantly more than females from the programmed instruction in oral reading.70

Many of the experiments in the field of programmed instruction and programmed reading find and report a finding of no significant difference. However, in drawing a realistic conclusion in any experiment, the null hypothesis of no difference is compatible with a number of different hypothesis that some difference does exist, even though it is not gross enough, in relation to the variability of the data to be significant.71

---

70 Ibid., pp. 82-83.
71 Ibid., p. 6.
CHAPTER III

IMPLICATIONS OF PROGRAMMED READING

CONTRASTING PROGRAMMED READING WITH BASAL READING

"Programmed Reading" is an individualized program, structured around stimulus response and immediate reinforcement. It changes the function of reading and the part it plays in the overall curriculum.

In the early 1900's, the primary purpose of teaching reading was to teach the pupil to learn to read. Reading instruction was based on teaching the mechanics and skills involved in the teaching of reading. In the middle of the twentieth century, the primary purpose of reading instruction was teaching the pupil to learn by reading. Instruction in reading emphasized comprehension and critical thinking. Presently the primary purpose of basal reading programs is a combination of "learning to read" and "reading to learn." To structure this into their programs typical basal reading series will develop the use of:

1. Act of responding appropriately to printed symbols.

2. Skill mastery in recognition of words with meaningful responses to them.

3. Developing a proficiency in adapting methods of reading in accordance with the purpose for reading and restrictions imposed by the materials themselves.

---

In attempting to structure basal reading programs which develop from the above, the basal series will incorporate these three steps into their reading program. This encompasses three different kinds of reading.

1. Developmental reading.
2. Functional reading.
3. Recreational reading.\(^73\)

Developmental reading is reading in which the main purpose of the teacher is to bring about an improvement in reading skills and activities in which "learning to read" is the main goal. Functional reading includes all types of reading in which the primary aim is to obtain information - "reading to learn." Recreational reading consists of reading activities which provide enjoyment, entertainment, appreciation through a combination of "learning to read" and "reading to learn."

Beginning reading instruction is centered around five stages of reading in basal series programs.

1. Development of reading readiness.
2. Initial stage of reading readiness.
3. Rapid development of reading skills.
4. Stage of wide reading.
5. Refinement of reading.\(^74\)

These stages of reading instruction are developed throughout the primary and elementary grades in a gradual sequential manner. When one stage is mastered, the next stage is introduced.

\(^73\)Ibid., p. 12.
\(^74\)Ibid., p. 14-16.
Harris lists the following objectives of a basal reading series:

1. Is consciously directed toward specific valid ends which have been agreed upon by the entire staff.

2. Coordinates reading activities with other aids to child development.

3. Recognizes that the child's development in reading is closely associated with his development in other language arts.

4. At any given level, is part of a well-worked-out larger reading program extended through all elementary and secondary schools.

5. Provides varied instruction and flexible requirements as a means of making adequate provisions to the widely different reading needs of pupils.

6. Affords at each level of advancement adequate guidance of reading in all the various aspects of a broad program of instruction: basic instruction in reading, reading in the content fields, literature, and recreation or free reading.

7. Makes special provisions for supplying the reading needs of cases of extreme reading disability.

8. Frequent evaluation of the outcomes of the program and for such revisions as will strengthen the weaknesses discovered. 75

Basal reading programs encompass both the purpose of "learning to read" and "reading to learn." Reading develops in a systematic sequential program with definite designated objectives.

The basic purpose in "Programmed Reading" is to bring about an improvement in the development of reading skills. Functional reading and recreational reading are of secondary value and importance.

75 Ibid., p. 11.
"Programmed Reading" at the primary level encompasses two stages of reading; the initial stage of reading readiness and rapid development of reading skills. According to Dale, the objectives of "Programmed Reading" are as follows:

1. It is consciously directed toward specific valid ends which have been written by the programmer.
2. It coordinates reading and language, with spoken language playing a major role in the reading process.
3. It is an earlier and more direct method of teaching letter-sound relationships.
4. Provides greater individualization of instruction.
5. Provides an opportunity for the child to become more self-directive in the learning process.
6. Provides for immediate stimulus, response, and reinforcement.
7. Eases the lock-step method of teaching reading to all pupils at the same time.
8. Designed to speed the rate of "learning to read" in hopes that it will increase the efficiency of "reading to learn."

The McGraw-Hill "Programmed Reading" series describes their readiness program as "Programmed Prereading." In using the "Prereading" readiness program, the teacher designates a specific sequence of skills for the children to follow. The pupils are taught:

1. The names of the letters of the alphabet, capital and small.
2. How to print all the capital and small letters.
3. That letters stand for sounds.
4. What sounds to associate with a, e, m, n, p, t, th, i.

Letters are read from left to right.

6. That groups of letters form words.

7. The words "yes" and "no" by sight.

8. How to discriminate between ant, man, and mat.

9. How to read the sentence, "I am an ant." 77

The readiness procedures used in "Programmed Reading" are dissimilar to those usually characteristic of a basal reading series. Basal reading readiness is characterized by age, sex, general intelligence, visual and auditory perception, physical health, maturity, freedom from directional confusion, background of experiences, comprehension, use of oral English, emotional and social adjustment, interest in reading. Harris states that "reading, like walking, can be mastered only after a long process of growing and learning has taken place." 78

"Programmed Prereading" implies reading which comes before actual reading and includes a specified previously referred to list of skills. These are necessary to be learned before "Programmed Reading" can begin. It does not take into account essential readiness characteristics usually referred to in a basal series. However, "Programmed Reading" takes into account the child's ability to enter the field of reading upon mastery of necessary skills.

Following the successful completion of "Programmed Prereading" is the period of rapid development of reading skills. The pupil is

77 Cynthia Dee Buchanan, Teachers' Guide to Programmed Reading, Series One, Webster Division, McGraw-Hill Book Co., St. Louis, 1964, p. 3.

78 Harris, op. cit., p. 25.
instructed in the skills of reading and proceeds at his own rate through the program. The books are sequential in sequence so that skills become more difficult until mastery of a specific skill is attained. Building on this stage, the instructional material proceeds gradually from the simple to the more complex until the skills are presented in completeness. Thus "Programmed Reading" stresses the teaching of skills and mechanics of reading instruction, whereas, most basal reading programs stress comprehensive, creative and critical thinking in the teaching of reading.

Basal reading series are developed from goals established by the school administration, principals, and teachers. The goals for "Programmed Reading" are developed by those responsible for the conception of "Programmed Reading." A fundamental characteristic underlying "Programmed Reading" is the individualization of the program. The psychology of stimulus, response, and reinforcement is characteristic of "Programmed Reading." A basic characteristic of basal reading series is that they are developed as a total reading method which encompasses all aspects of learning to read into an overall systematic approach to the teaching of reading.
A CHANGING ROLE FOR THE TEACHER
IN PROGRAMMED READING

From early writings on the topic of programmed instruction, some teachers have become alarmed at the inference that programmed instructional material may decrease the role of the teacher of reading. Success, however, in administering programmed reading is dependent upon the teacher. The teacher's attitude, understanding, and encouragement contribute to the overall success of programmed reading.79

Programmed reading being a child centered rather than a teacher dominated program changes the role of the teacher. If the teacher is responsible for passing on most all of the knowledge, principles, defining terms, et. al., she cannot provide opportunities for overall personal growth of a classroom of pupils. Too often in many present reading programs the pupil is adapted to the program rather than the program adapted to meet the needs of the pupil. When it is the teacher's responsibility for pupil learning, then the teacher takes on the image of the pupil's enemy.80 Thus many of the present reading procedures being taught by the teacher can be taught with programmed reading. This would leave time for the teacher to guide and coordinate her pupils along the purposes of the reading program without becoming the dominant adversary and the comptroller of knowledge.


Programmed reading will demand more of the reading teacher than do some of the other types of programs. However, the demand will be different than that of other programs. The teacher, for example, does not introduce a story, implement its challenge to the reader, and then allow the reader to discover the story through teacher direction. The teacher's role is that of helping pupils achieve independence in the use of programmed reading. To develop this independence takes time and will be a gradual process with the beginning readers. Pupils will learn to take some of the responsibility for their own learning allowing the teacher to work more closely with individuals and small groups.

A programmed reader challenges the pupil by a stimulus to answer or find the answer to a question or problem. The pupil responds and checks his own response. The reader reads to find the answer, finds it, and is given immediate response. In other reading programs it is impossible for one teacher to give immediate response to every pupil and not every pupil will react to a given teacher stimulus let alone respond.\textsuperscript{81}

Interest in the reading lesson does not have to be teacher inspired in programmed reading. The program itself demands a high interest level which is recapitulated by pupil inspiration.\textsuperscript{82}

The teacher using programmed reading is not bound by tradition and custom whereby all children read from the same reader at the same time. On the contrary, because programmed reading is an individualized

\textsuperscript{81}Steele, op. cit., p. 535.

\textsuperscript{82}Goss, op. cit., p. 1.
reading program no child must wait for another in order to discuss and transmit meaning. Programmed reading directs the fast as well as the slow working student to proceed at his own level and need. The teacher is not frustrated because one group of students is bored with another group. Teachers using programmed reading would not be concerned with every child reading up to grade level or finishing a designated reader. The pupil himself will determine where he should be and how fast he should proceed.

Grouping for instruction would be more flexible for those using programmed reading. Diagnosis of reading problems and weaknesses can be quickly and easily recognized as the reader cannot continue in his programmed booklet unless he comprehends and understands. Those children having a specific reading problem could be grouped together for supplementary and corrective instruction. The number and size of the group would be determined by the needs and weaknesses diagnosed. Thus the teacher would no longer prepare three or more reading presentations to meet the group needs of the class.

No longer would the reading teacher need to pace herself to fit a time schedule for each reading group. There would be no time lost in getting the reading group to the reading circle or table as the children would be working at their seats in their individualized program. Those needing corrective and additional help would be grouped together for a specified lesson and could then continue in their booklets alone.

The teacher using programmed reading need not spend hours grading workbooks as programmed reading is self-correctional except
for the testing program. Perhaps the role of the teacher turning into a fearful taskmaster will decrease in importance as each child works independently in an individualized reading program. Conceivably one could surmise that the role of the teacher might change from supreme evaluator to a coordinating, cooperating, evaluating counselor.

Briggs states the following roles for a teacher using programmed reading:

1. Become a counselor
2. Become a tutor
3. Become an evaluator of progress
4. Encourager of initiative
5. Rewarder of creativity
6. Designer of personal projects
7. Critic of student projects
8. Aid in social development
9. Remedial loop to the program
10. Assigner to programs
11. Monitor of discipline
12. Source of feedback to programmers

The more flexible the teacher, the greater the number of useful and alternative roles there appears to be.

---

84 Ibid., p. 72.
The role of the teacher in selecting programmed reading in lieu of another reading program or programs will be a difficult one at the present time. Programmed reading being a relatively new innovation carries with it the problem of inadequate research concerning its reliability and validity. Judgement, careful evaluation, and an analysis of the needs and objectives of your reading program coincide with the needs and objectives of the school system. Before accepting programmed reading, a teacher should have thoroughly researched these needs. There are two basic characteristics according to the Joint Committee on Programmed Instruction and Teaching Machines by which programmed materials are to be evaluated. The characteristics are those that are "internal" and those that are "external." Internal characteristics are those which can be judged by visual inspection, such as content.85 External features are the more objective parts of the program, such as measures of gain in achievement and evaluation by students, teachers, and experts.86

There are five questions that a teacher should decide upon before choosing programmed reading:

1. Is the program content appropriate to meet the needs of the pupil?

2. How does the program supplement or hinder teacher-pupil planning?

3. What kinds of motivation will be needed to sustain the interest of children using this material?


86 Ibid.
4. Will children be able to retain and apply the knowledge and skill which they have acquired in non-school situations such as free or pleasure reading time?

5. What kinds of attitudes is this learning method likely to produce and are these attitudes socially useful? 87

Before programmed reading will be used more extensively, S. Morris states the following.

1. The teachers should decide if the program has had at least two tests - a pilot study and a full scale test.

2. Is the subject matter accurate and appropriate to the level of difficulty?

3. Is the program of suitable length?

4. In a linear program is the error rate around five and no more than ten percent?

5. Is the program going to initiate dull and unenlightened students?

6. Is the amount of time the children can work with the program in tune with the reading age and ages of the pupils?

7. Is there possible danger of curtailing oral work and weakening communication with the teacher losing group dynamics of the class? 88

The teacher who accepts the use of programmed reading must do so on the basis that it is a new innovation and that results will not necessarily prove programming a superior or inferior method. Also,


will the teacher detect the weaknesses and strengths of the program in lieu of classroom environment?

If new innovations, such as programmed reading, are to be effective, they must be tried and evaluated. At the present time, not enough trial and evaluation concerning programmed reading is being done. The changing role of the teacher will continue to evolve out of each new experiment and evaluation. Because programmed reading is an individualized program, the role of the teacher seems to be more flexible and creative.

Programmed reading will not only affect the teacher's role but her methods and class organization. The role the teacher asserts will definitely determine the role programmed reading will play and the success of it. The traditional teacher role of telling and showing will diminish and the students will take on a role of self-discovery. The teacher could become a subject matter specialist and help to keep the educational machinery going, develop attitudes, aspirations, and ideals. According to Maehr, the teacher of the future can, and should be, less concerned with the transmission of the subject matter and more concerned with the person who is to confront the subject matter through the growth of the person as a whole.

---

89 Ibid., p. 553.
91 Ibid., p. 3.
PROONENTS OF PROGRAMMED READING

Programmed instruction in the teaching of reading is constructed to be used as an individualized activity. This relieves teachers from routine question and answer sessions, drill, routine testing, and from some kinds of lecturing. Because the programs are pre-arranged, sequential, and eliminate many routine teaching duties in reading drill, there can be increased efficiency of classroom teaching. Careful sequential ordering of problems enables the student to move from simple to complex tasks with maximum probability of success at each step. Each student proceeds at his own rate. The student who has been absent does not have make-up work to do in reading as he can begin where he stopped his reading lesson before his absence.

The amount of reinforcement per child is large, since the child is provided with immediate knowledge of results of each response to the material. Misinformation resulting from slipshod contingencies or reinforcement could be eliminated. Anxiety, avoidance, and resentment from negative reinforcement are all too common in the average classroom.92

Programmed instruction in reading could be a master teacher for all because of the uniformity of instruction and elimination of subjectivity. The caliber of reading instruction should improve and generally be more uniform nationwide.93 Programmed reading texts would be inhumanly patient but impersonal. The teacher's personality, skill,


93Ibid.
and social setting would be removed from the scene. Most of the
theories of the teaching of reading could be tested under more control
than has ever been possible. Widespread attempts to program could
hardly fail to result in clearer general understanding of the components
of reading skills and sequences of teaching them.94

There is general neglect of education method today.95 Programming in reading is theoretically based on expert initial analysis of
the content and the skills involved in learning to read.96 Thus, by
helping teach the tools of thought, programmed reading frees the teacher
to spend more time on adventurous problems and individual difficulties.
Pupils learn to take part of the responsibility for their own learning
and thus allow the teacher to work more closely with individual
and group problems.97

Pupils who constantly seek the attention of their peers and
teacher could benefit from programmed reading as it demands the
attention of the pupil if the pupil is to respond.98

The number of reinforcements required to build discriminative
behavior in the population as a whole is far beyond the capacity of

94Fred M. Newman, "Teaching Machines: A Primer," Educational
95Ibid., p. 3.
96Wells Hively, "Implications for the Classroom of B. F.
97Edward Fry, "Programmed Instruction in Reading," The Reading
98Ibid., p. 457.
teachers. Too many teachers would be needed and many reinforcements are too subtle to be mediated by even the most skillful of teachers. However, programmed reading gives immediate reinforcement as well as response and stimulus.

Gates states the derivatives of our current programmed texts will be major tools for teachers of the future.99 It looks as though the day is not far off when we are going to get serious about individualizing education.100

The following is a summary of proponents' views of programmed instruction in the field of reading and teaching machines as stated by Hively:

1. Programmed instruction in the teaching of reading and teaching machines focuses the attention of educators on the need for behavioral analysis.

2. Reinforcement now being done in reading in the primary grades can be greatly increased.

3. The programs eliminate many of the former reading drill duties, thus allowing the teacher to spend more time working with individual differences.

4. Careful sequential ordering of the programs enables the student to move from simple to more complex tasks with maximum probability of success.

5. The amount of reinforcement is large because of immediate knowledge of results.

6. The uniformity of instruction should result in improved reading.


100 Ibid., p. 35.

101 Hively, op. cit., p. 46.
CRITICS OF PROGRAMMED READING

Even though programmed instruction proponents profess it to be beneficial and purposeful in the teaching of reading, there is suspiciousness and caution concerning its adoption. Severe, adverse criticism of programmed instruction is partly due to the early emphasis on teaching machines which professed extravagant claims of accomplishment. Premature attention of advocates of programmed instruction hurried the rate of introduction of programming beyond its capabilities. Publishers, eager to publicize and sell this new innovation, hampered its long range goal of test and retest before widespread selling.¹⁰²

The critics of programming have expressed rather loud disagreement as to who should use it, when it should be used, and how it should be used. Sherman Frey states the following weaknesses of programmed reading:

1. Programmed materials in reading are very limited in the scope of mental activity required.

2. The presentation is verbal, thus prohibiting poor readers from attaining success.

3. Average students and above-average students in reading do not need small progression of pacing.

4. Rigidity and unimaginativeness of programmed materials in reading leads to boredom and disinterest.

5. Programming will not be any more successful than film instruction if it is the only one method of presentation.

6. Self-pacing of thirty children at thirty different paces provides for teacher evaluation problems, storage problems, and chaos in the classroom in the loss of control over the teacher-learning process.

7. Most teachers have been trained in group processes and have little if any training in individualized reading.

8. There is a lack of current concepts in programmed reading and psychological principles upon which it is based.

9. Teachers are unequipped to deal with programmed instruction materials and "therefore, probably will not deviate from the manual or the course outline."\textsuperscript{103}

The boundaries of this field are unclear; in one way a very large part of programming is research and another way it is experimental psychology.\textsuperscript{104} Many experiments in programmed reading do verge on experimental psychology, whereas others belong with research in reading techniques and methods. Many critics say reading does not lend itself to being programmed. Others are stating that programmed reading has not been proven and evaluated in terms of overall validity. Educators are looking at programmed reading and trying to decide if it compares, and how it compares, with present reading materials and programs now in use. They are in disagreement as to how programmed instruction in reading should be used. Jane Levine predicts that programmed reading could become a lock-step curriculum as there is

\textsuperscript{103}\textsuperscript{103}Sherman H. Frey, "The Case Against Programmed Instruction," The Clearing House, 40 (September, 1965), p. 28.

\textsuperscript{104}\textsuperscript{104}Ibid., p. 29.
little regard for the individual nature of growth and development.\textsuperscript{105} Teachers who now use reading workbooks, true and false tests, and mechanical methods exclusively will be armed with a superior weapon to abuse young minds.\textsuperscript{106}

Programmed instruction resists change; the growth of subject matter necessitates constant change, updating, revisions, and more change.\textsuperscript{107}

Current programs are in general rather poorly written, written on a very limited basis, developed from a narrow perspective of learning. Much more research is needed to discover who can profit from programmed materials.\textsuperscript{108}

Theories on which programming is based are in themselves unsound; for example, programmed instruction is based on the principle that students do not learn from mistakes, as most programs are designed so that 95\% of the responses will be correct. Programmed reading is still bogged down in technical and mechanical difficulties; in the future there is a possibility that significant developments may be produced, but thus far efforts are experimental.\textsuperscript{109}

\textsuperscript{105}Levine, \textit{op. cit.}, p. 337.

\textsuperscript{106}Ibid.

\textsuperscript{107}A. A. Lumsdaine, "Teaching Machines and Self-Instructional Materials," \textit{The Education Digest}, XXV (December, 1959), p. 89.


\textsuperscript{109}Brother Leonard Courtney, "Recent Developments in Reading Instruction in the Content Areas," \textit{Recent Developments in Reading}, ed., H. Alan Robinson, XXVII (December, 1965), The University of Chicago Press, p. 144.
Test results concerning programmed reading are affected by the type of programming used, the type of students involved, and the classroom conditions. Means for evaluating programmed reading are just now being developed and are very limited in scope. Reading begins with very immature pupils and unfolds as they mature physically, mentally, and socially.
CHAPTER IV

SUMMARY AND CONCLUSIONS

SUMMARY

The demand for meeting the needs of the individual, coupled with the demand for excellence in education, has brought forth new methods in education. Programmed instruction was developed in the laboratory and used to study animal behavior. From the laboratory, programmed instruction was tested in different areas of learning and then introduced into some of the classrooms around the country. Here educators, programmers, administrators, specialists, and teachers have tried, evaluated, adopted, and in some cases abandoned its use. However, acceptance by a number of people has brought forth programmed instruction into various areas of the curriculum. Programmed reading, an outgrowth of this, is an innovation in reading which is being scrutinized, evaluated, and appraised very cautiously. One can find avid supporters and critics of programmed reading. The question is not whether reading can be programmed, but should it be and for whom? Reading authorities are being quite cautious about immediately accepting programmed reading, as evaluation and reliability of studies concerning the advocates of programmed reading are not conclusive and sometimes rather vague.
CONCLUSIONS

1. There are many schools of thought and lack of agreement concerning the teaching of reading.

2. Many believe the psychology of programmed instruction is questionable.

3. Programmed instruction is being used in some classrooms; however, in many areas of the curriculum its use is supplemental and an enrichment type of program rather than the primary method.

4. Programmed instruction has not been thoroughly tried and evaluated in all areas of the curriculum.

5. Programmed reading is not being used extensively or sufficiently to allow for comprehensive acceptance of results.

6. Some present reading programs presently being used are inadequate, insufficient, poorly written, and undesirable.

7. As a supplementary program, programmed reading is advantageous for pupils who have been absent, pupils who learn best with this type of instruction, and for pupils who need additional work on a particular reading skill.

8. Extensive use of programmed reading could help alleviate inconsistencies and inadequate reading techniques and methods which are presently being used through constant revision of the reading process.
BIBLIOGRAPHY
BIBLIOGRAPHY

Books


Bulletins


Bulletins - Continued


Articles and Periodicals


Fry, Edward. "Teaching Machines and Reading Instruction," The Reading Teacher, XVI (April, 1960), 54-52.


Articles and Periodicals - Continued

Gleason, Gerald T. "Will Programmed Instruction Serve People?" Educational Leadership, XXIII (March, 1966), 471-479.


Gray, William S. "Looking Ahead in Reading," The Education Digest, XXVI (February, 1961), 14-18.


Lumsdaine, A. A. "Teaching Machines and Self-Instructional Materials," The Education Digest, XXV (December, 1959), 89-96.


Articles and Periodicals - Continued


Pressey, Sidney L. "Programming--Boom Then Bust!" The Education Digest, XXIX (April, 1964), 9-12.


Sparbur, Edward L. "Test Results and Reading Growth in Programmed Reading," Report on the Use of Programmed Reading During the School Year, 1963-1964, 3.


Stolourour, Lawrence M. "Teaching Machines and Special Education," The Education Digest, XXV (May, 1960), 182-190.


Traxler, Arthur E. "What Does Research Suggest about Ways to Improve Reading Instruction?" The Education Digest, XXIII (April, 1958), 105-111.