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An Evaluation of the Automated Reading Program: First Steps in Reading for Meaning

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AN EVALUATION OF THE AUTOMATED READING PROGRAM: FIRST STEPS IN READING FOR MEANING

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by

Helen Elizabeth Schourup

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THIS PAPER IS APPROVED AS MEETING THE PLAN I REQUIREMENT FOR THE COMPLETION OF A THESIS PAPER.

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CHAPTER I

THE PROBLEM AND DEFINITION OF TERMS

A significant number of students fail to learn to read in the elementary grades (3:2). This group cannot participate in the normal academic learning situation. Yet, these children require an education to take their place as productive adults in the social system. Their education requires that the teacher devote extra effort, and use special techniques to enable them to learn to read.

I. THE PROBLEM

Purpose of the study. There are pupils who have not attained reading skills comparable to their grade level. Conventional teacher-class teaching methods have not proved to be adequate. There is an indicated need for a method that deals with the learning problem of each individual non-reading student. The TMI-Grollier Self-Tutoring Program, "First Steps In Reading for Meaning" offers the possibility of a solution to the problem of how to individualize instruction. The purpose of this study was to evaluate the effectiveness of this program to fulfill the indicated need.

Importance of the study. The technical advances and social changes of modern society are making increasing demands upon the individual that he be educated in order to earn a

living and be able to exist in accordance with the social system. The retarded readers, early in their school careers, become frustrated through inability to keep up with the average learner's pace. They readily lose, or never develop a desire to learn, frequently become the school discipline problems, the drop-outs, and the future welfare cases and other unproductive social misfits.

Reading tests given anywhere in a school system regularly show that there are children reading two or three grades below where they should be reading. These retarded readers cannot be learning what they should, and the rest of the class is often held back while the teacher devotes extra time and effort trying to help the retarded individual or group. Dolch says that, "The total loss in time and in educational values which poor readers cause in our school system is enormous. And the loss in happiness, self-confidence and security on the part of the poor readers themselves is beyond calculation" (3:1-2).

Unless a child learns to read to the best of his ability, he cannot participate fully in academic learning. And as our society becomes more technologically complex, the adult who has not achieved his optimum academic learning becomes less and less able to function as a participating, productive citizen.

II. THE HYPOTHESIS

The major hypothesis to be tested was, if retarded readers complete the program, "First Steps in Reading for Meaning," their reading abilities will show measurable and significant improvement. It was also expected that the results obtained would be usable for evaluating the program's usefulness and its strong and weak characteristics.

III. LIMITATIONS OF THE STUDY

Limitations of the study. This study was limited to the 5 available Subjects who met the following criteria:

(1) Was a retarded reader as defined below.

(2) Was able to read fewer than 23 words of the program's pre-test. If a child could read more than 23 words (50%) it was not considered worthwhile for him to take the program.

All 5 Subjects were Third Grade students attending Hebeler Elementary School at Central Washington State College in Ellensburg, Washington.

The evaluator had no contact or control over the Subjects outside of the program period. No supplemental or program oriented reinforcement of the Subjects' classroom reading activities as recommended in the units 3 and 5 "Activities" instructions of the program manual was possible.

IV. DEFINITIONS OF TERMS USED

Retarded reader. A student whose reading ability is below his grade placement, (usually one or more years), (5:341). In this study the third grade subjects' reading retardation varied from .8 to 1.3 years.

Programmed instruction. A learning situation where the student proceeds through a sequence set of specified behaviors and responses. It is usually a series of items, questions, or statements to each of which, in sequence, the student makes a response.

Frames. Each item, question, or statement that calls for a response by the student.

Prompt. A prompt is a "cue" or hint for insuring a correct response.

Operant conditioning. Operant conditioning is a form of learning wherein the subject becomes progressively more likely to respond in a given situation with a response which in previous similar situations brought about a need reduction or a satisfying state of affairs (6).

V. ORGANIZATION

Organization of the thesis. A resume of the history and present status of the problem follows this. Chapter II

gives a description of the program and how the program works. The chapter on method of study contains the selection of subjects, presentation of the program, modifications, and tests used for evaluation. Results of the tests, a breakdown of time and errors per unit, and a summary of each subjects' reactions to the program are given in Chapter IV. The meanings and implications of these results are discussed in Chapter V, and a summary is given in Chapter VI.

VI. HISTORY AND PRESENT STATUS OF THE PROBLEM

History. It has only been ten years since Professor B. F. Skinner read a short paper to a conference of psychologists and alerted educators to the possibilities of programmed instruction (14:99-113). During the last seven years the method has gradually been coming to public notice, moving into the discussions of professional educators and school boards, into the plans of educational publishers and film makers, and into the stage of cautious trial and limited use in the schools (9:5). The program herein tested and evaluated is a part of this limited use and trial.

Review of the literature. The McGraw-Hill Book Company has published a program for beginning readers prepared by Cynthia Dee Buchanan. These programmed reading books use a phonetic approach, proceeding from large to small discriminations and from simple to more complex situations. The

publisher claims that at the end of the first series of readers the child can read and write all the consonants and all the short vowels in a vocabulary of 500 words. A remedial class of 15 first through fourth grade children in Crittenden School, Mountain View, California, used this program 25 minutes every day for 3 weeks. The results on the Gates Reading Test showed a mean gain of 4 months (20:39-41).

Lysaught and Williams recommend that after a program has been published it be field-tested by the consumer. Data regarding the effectiveness of a particular program in a particular application should be gathered. The data should be shared with other users for decision on use of the program, and fed back to the publishers for use in revisions and improvements. Lysaught and Williams offer a few guide-lines upon which the user may set up and conduct an experiment on the effectiveness of the program in a particular educational setting. Salient is the pre-testing of learners before they pursue a program and the post-testing after it has been given. Ideally, the objective pre- and post-tests should be equivalent, and they should be so constructed that the content and instructional aims of the program are best represented. Even though field evaluation will not include the fine controls that professional researchers would desire, it will help to answer the essential question of whether or not the program causes the students to increase their skills and knowledge as specified by the program's objectives (15:134).

An exhaustive search of the Library Literature Index, Psychological Abstracts, Educational Index, unindexed current periodicals, and available library facilities reveals a shortage of published information and reports of research in the area of programmed teaching of basic reading skills. This indicates a need for research and critical evaluation of the applicability of already published reading programs to remedial problems.

CHAPTER II

DESCRIPTION OF THE PROGRAM

I. TITLE

"First Steps in Reading for Meaning" Self-Tutoring course by TMI-Grolier, distributed by Teaching Materials Corporation, 575 Lexington Avenue, New York City.

II. PURPOSE

Purpose of the course. The publishers have stated the purpose of their course in a succint preamble on the cover of the course manual:

> This TMI-GROLIER Self-Tutoring Course is designed for those students beyond the first-grade level who have not yet learned to read. The main objective is to get the student off to a good start in reading.

According to the publisher, the course familiarizes the student with the nature of reading and enables him to learn enough to continue learning to read by other methods. The learner should be able to progress to a regular school primer from this course.

III. CONTENT

Course content. The course content has been designed around the objective concept of teaching measurable and observable knowledge, skills, and attitudes. The student

learns to read 72 words and 35 sentences (Appendix A). According to the Thorndike and Lorge word count, 70 per cent of these words are among the 1000 most common words and 40 per cent are among the 500 most common words in the language. To facilitate transfer skills most of these words are regular and show similarities in beginning consonants and endings. Evaluative devices are provided in the pre- and post-tests, picture identification, practice sentences, and special word game activities. These enable both the teacher and the student to monitor progress, and the teacher to observe the formation and changes in attitudes toward reading and learning to read.

IV. METHOD

Procedures. The program is designed specifically for use with the Min/Max teaching machine. There are 1702 frames, and the course requires from 15 to 25 hours to complete. The program is sequenced in easy steps through which the student is led one step at a time (Appendix C). The tasks progress from matching pictures, to matching words, to selecting a word which goes with a particular picture or finding a picture which goes with a given word (Appendix C, p. 61 , 62 , & 63). Toward the middle of the course, sentences are introduced. Each sentence contains at most one new word, all of the remaining words having been well established in advance. The sentences are constructed so that the context and the accompanying

picture make the new word obvious. This method of prompting enables the student to learn the common prepositions, conjunctions, articles and adverbs which cannot easily be taught in isolation (Appendix C, p. 64, frame 197). Comparisons between words that rhyme and also between words with the same beginning consonant are used to facilitate learning the parallel between sounds and patterns of letters (Appendix C, p. 63, frames 64 & 65).

Programmed learning. There are some fundamental differences between self-tutoring programmed learning courses and conventional study procedures. These are, (1) the student proceeds through a carefully graded sequence of material which has been demonstrated to produce learning, (2) the self-tutoring course insures active participation in the learning process by the student, (3) the self-tutoring course provides the student with immediate confirmation of the correctness of his answers, and (4) the student can proceed at a rate of his own choosing. The teacher is relieved of the routine espects of teaching and is freed to review and elaborate upon the basic understanding of the topic which the self-tutoring programmed course provides.

Operant conditioning. Programmed instruction and learning has been developed upon the principles of operant conditioning. It is the extrapolation into the classroom of humans, a mechanized version of the animal laboratory experiments of B. F. Skinner (6:82-119). It is based upon the

experimentally developed principle of the control of behavior through successive approximations and differential reinforcement of learning activities. That is when the desired response occurs; here in learning to read the selection of the correct letter or word, the response is reinforced by the learner being informed that his response is correct and the program advances to the next frame. Extreme forms of behavior may be obtained by successive approximations. If only the more extreme values of the response are reinforced, the whole pattern shifts, so that more and more complex behavior is obtained. As differential reinforcement of the higher and higher values of the reading responses of the learner is made, his reading behavior is shifted from the simple to the complex. The whole operation is chained together in small segments by successive frames, and the learner's reading ability is shaped from letters to words to sentences (16:1-2).

CHAPTER III

METHOD OF STUDY

I. SUBJECTS

Subjects. Five remedial reading subjects were selected for evaluating the effectiveness of the program. The reading skills of these 5 students were objectively tested before and after working with the program, and the results were used for evaluation purposes. All 5 subjects completed the program.

Selection of subjects. Six third grade children who had been reading on the first grade level were recommended to take the program. The pre-test accompanying the first edition of the program was administered to these potential subjects. (Appendix D, p. 66) Each child was given an opportunity to read the words listed on the test, and a record was made of those words read correctly. Following is the number of words each child read correctly, and the per cent these were of the total number of 45 words on the pre-test:

Subject	Words correct	Per cent of total
A	14	31%
B	17	38%
C	16	36%
D	12	27%
E	12	27%
F	39	87%

Subject F was eliminated from the evaluation because he could read more than the 23 words (50%) selected as the cut-off point for elegibility to participate in the program. The

remaining 5 pupils were given the California Reading Test Form X. The results showed reading grade placements ranging from grade level 2.2 to 2.7. The actual grade placement of these pupils was 3.5 at the beginning of the evaluation of the program, making a difference of from .8 to 1.3 years of reading retardation. (Table 1) It was felt that these 5 students were sufficiently retarded in their reading ability to benefit from the basic reading program, and to permit a valid evaluation of the effectiveness and efficiency of the program.

Intelligence quotients (IQ) for these 5 subjects, as measured by the California Test of Mental Maturity given in October 1963 ranged from a low of 82 to a high of 115. (Table I) Reading grade placement was determined from the California Reading Test, Form X, given preceding the program. Actual grade placement was 3.5.

II. PRESENTATION

Preliminary procedures. It was arranged to give the program during the regularly scheduled reading time from 9 to 10 a.m. The evaluator could take any or all of the subjects as needed. Any subjects remaining in the regular classroom during the programmed learning period would have other work to do. An agreement was also made with the subjects' regular classroom teacher to give them no additional reading instruction until the program had been completed and the final test administered.

TABLE I

DATA ON SUBJECTS USED IN EVALUATING THE PROGRAM

Subject	Age	Sex	Reading Grade Placement	IQ
A	9-1	F	2.7	82
B	9-5	F	2.5	84
C	8-4	M	2.2	115
D	8-10	M	2.3	95
E	8-9	M	2.4	100

The pre-test for the first edition of the program was used to select the subjects. However, when additional copies of the program were ordered for this evaluation, the second edition was received. The pre-test for the second edition was also given to the 5 selected subjects. The results of both pre-tests were utilized in the total evaluation.

Presentation of the program. The program was presented in accordance with the publisher's directions.

For the first 5 units the instructor proctors the learner. The program gives detailed and exact directions as to what the teacher is to say and do. (Appendix C, p. 61, and 62) Upon completion of Unit 5 the subjects were administered the post-test (Appendix D, p. 68). This test includes single consonant sounds and words which were presented in the first 5 units, and 8 new words which the children should have been able to sound out. A record was kept of errors.

In units 6 through 10 the subjects worked independently, proceeding at their own rate.

The starred frames are designed to test the subject on materials previously presented in the program. If answered correctly the child receives a star. (Appendix C, p.62, frame 10)

Suggestions for drill, games, and additional activities to be used following each unit were listed. (Appendix B,)

During the first 5 units the evaluator worked with 2 subjects at a time, sitting between them for ease in checking their answers. Subject B was absent the first week, so he received the instructions for the first 5 units by himself.

When a subject began working independently at the beginning of unit 6, he was allowed to work at the machine or play the "Matching" game, a bingo type game in which capitol and small letters are matched, or the "Sound the Word" game (Appendix B, p. 58) with another subject or with the proctor. This was done in order to keep the program within the subjects' interest span, and to measure their enthusiasm for the machine run program. None of these activities conflicted with the publisher's instructions.

Detailed notes were made of each subject's time per lesson, number of errors made, and other pertinent observational data.

Post-tests. After completing the program each subject read the practice sentences, and the number of errors were recorded (Appendix D, p. 69-70). Form W of the California Reading Test was given to compare the results with those of Form X given preceeding the program. As the pre-test contained the words presented in the program, it was given again after the program was completed.

Modifications. To preserve the programs physically for future use the "Star Frame Scoring Sheets" were replaced

with blank paper and gummed stick-on stars. Each subject maintained his own scoring sheet, and was permitted to arrange the stars on his paper as he wished.

For answer sheets duplicated forms were made for the subjects to use (Appendix E). These answer sheets were used for units 5 through 10, and each sheet became a record of results. The subjects were required to number these answer sheets to correspond with the numbers of the frames being answered. The maximum number of frames in any unit was 265, but these children had trouble numbering past 100. For this reason the subjects were taught the principles of numbers and numbering. This took about half the time of one period.

CHAPTER IV

AN ANALYSIS OF THE RESULTS

I. RESULTS

All of the subjects showed a gain in reading ability as a result of taking the reading program. The agreement with the subject's regular teacher not to give any other reading instruction during the evaluation period, acceptably ruled out concurrent formal reading instruction adding to the effect of the program. The individual gain varied from a high of 10 months to a low of 4 months. The mean gain for the two months evaluation period was 7.6 months. This mean gain was significant at the .02 level of confidence. The results support the major hypothesis.

II. TESTS

California Reading Tests. California Reading Tests (Upper primary - grades 3 and lower 4) were administered to the subjects before and after the program. Form X was used for the pre-test and Form W for the post-test. The graphs accompanying Figures 1, 2, 3, 4, and 5 show each subject's scoring profile. These graphs are an enlargement of the "Diagnostic Profile" on the back of the California Achievement Tests. Percentile ranks were determined from the table of percentile norms in the test manual. A summary of the net

FIGURE 1

SUBJECT A: PRE-TEST AND POST-TEST RESULTS

Test	Section	Possible Score	Pupil's Score	Grade Placement	Percentile Rank	Pupil's Score	Grade Placement	Percentile Rank
READING VOCABULARY	A. Word Recognition. . .	.20	13			14		
	B. Meaning of Opposites	.25	10			15		
	TOTAL (A+B)	.45	23	2.8	20	29	3.3	40
READING COMPREHENSION	C. Following Directions	.15	4			9		
	D. Reference Skills. . .	.15	5			4		
	E. Interpretations . .	.25	7			7		
	TOTAL (C+D+E)	.55	16	2.6	10	20	2.3	10
	READING GRADE PLACEMENT			2.7	10		2.8	20

Key

Pre-test scores

Post-test scores

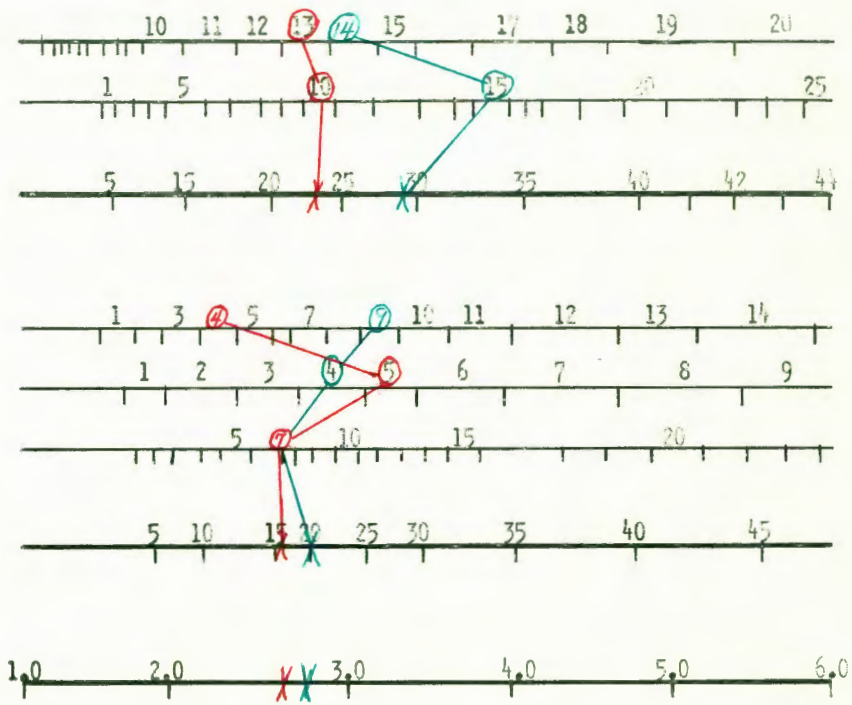


FIGURE 2

SUBJECT B: PRE-TEST AND POST-TEST RESULTS

Test	Section	Possible Score	Pupil's Score	Grade Placement	Percentile Rank	Pupil's Score	Grade Placement	Percentile Rank
READING VOCABULARY	A. Word Recognition. . .	.20	11			15		
	B. Meaning of Opposites	.25	9			11		
	TOTAL (A+B)	.45	20	2.5	10	26	3.1	30
READING COMPREHENSION	C. Following Directions	.15	4			9		
	D. Reference Skills. . .	.15	4			4		
	E. Interpretations . . .	.25	7			11		
	TOTAL (C+D+E)	.55	15	2.5	10	24	3.2	30
	READING GRADE PLACEMENT			2.5	10		3.2	30

Key

Pre-test scores

Post-test scores

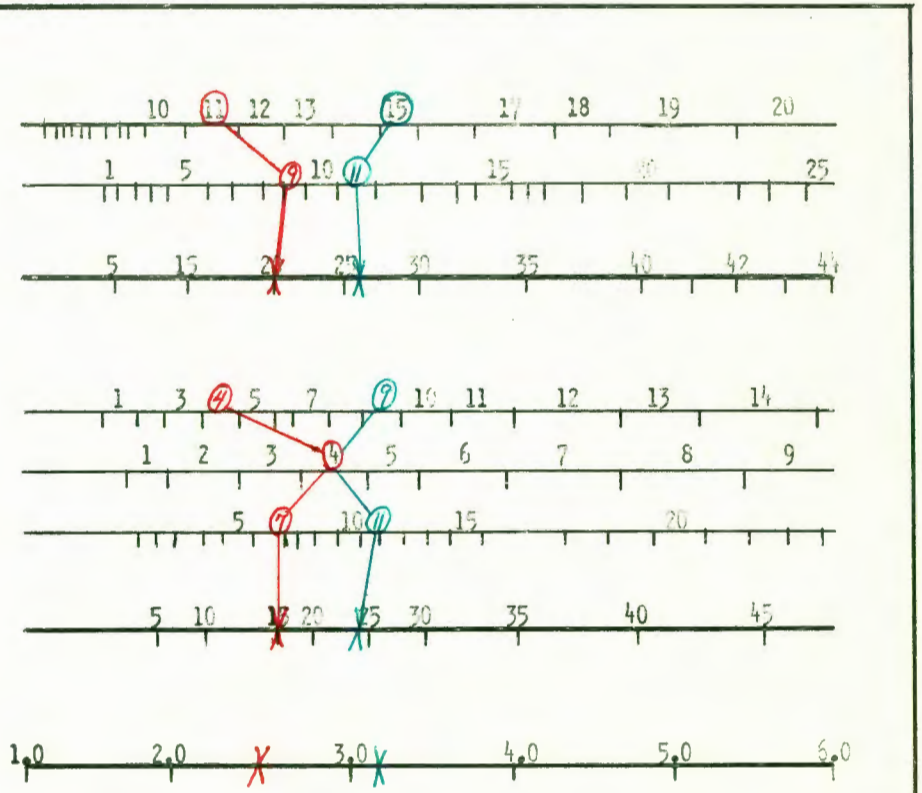


FIGURE 3

SUBJECT C: PRE-TEST AND POST-TEST RESULTS

Test	Section	Possible Score	Pupil's Score	Grade Placement	Percentile Rank	Pupil's Score	Grade Placement	Percentile Rank
READING VOCABULARY	A. Word Recognition. . .	.20	11			15		
	B. Meaning of Opposites	.25	5			10		
	TOTAL (A+B)	.45	16	2.0	5	25	3.0	20
READING COMPREHENSION	C. Following Directions	.15	7			9		
	D. Reference Skills. . .	.15	5			6		
	E. Interpretations . . .	.25	8			13		
	TOTAL (C+D+E)	.55	20	2.3	10	28	3.4	40
	READING GRADE PLACEMENT			2.2	5		3.2	30

Key

Pre-test scores

Post-test scores

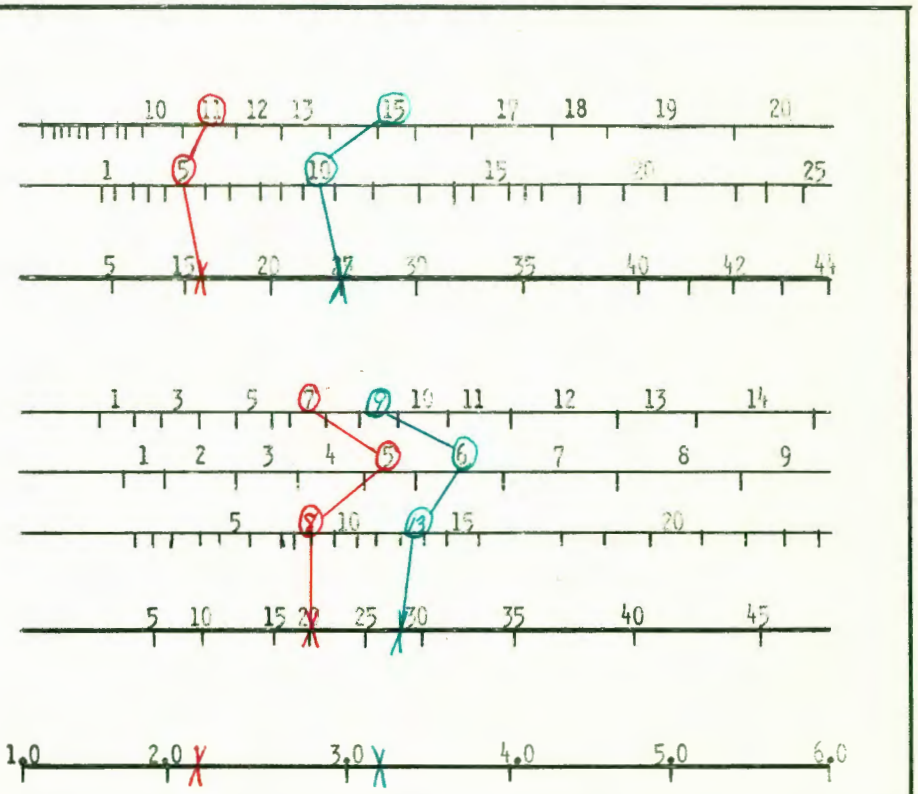


FIGURE 4

SUBJECT D: PRE-TEST AND POST-TEST RESULTS

Test	Section	Possible Score	Pupil's Score	Grade Placement	Percentile Rank	Pupil's Score	Grade Placement	Percentile Rank
READING VOCABULARY	A. Word Recognition. . .	.20	13			15		
	B. Meaning of Opposites	.25	7			12		
	TOTAL (A+B)	.45	20	2.5	10	27	3.2	30
READING COMPREHENSION	C. Following Directions	.15	4			8		
	D. Reference Skills. . .	.15	2			5		
	E. Interpretations . . .	.25	3			14		
	TOTAL (C+D+E)	.55	9	2.0	5	27	3.3	40
	READING GRADE PLACEMENT			2.3	5		3.3	40

Key

Pre-test scores ——

Post-test scores ——

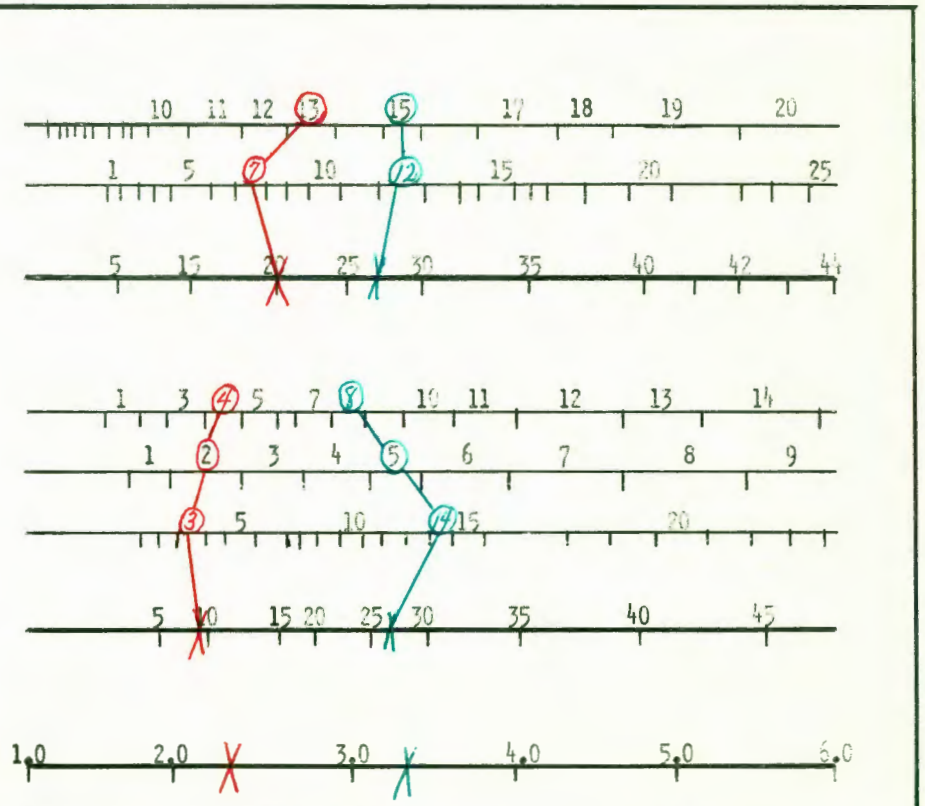
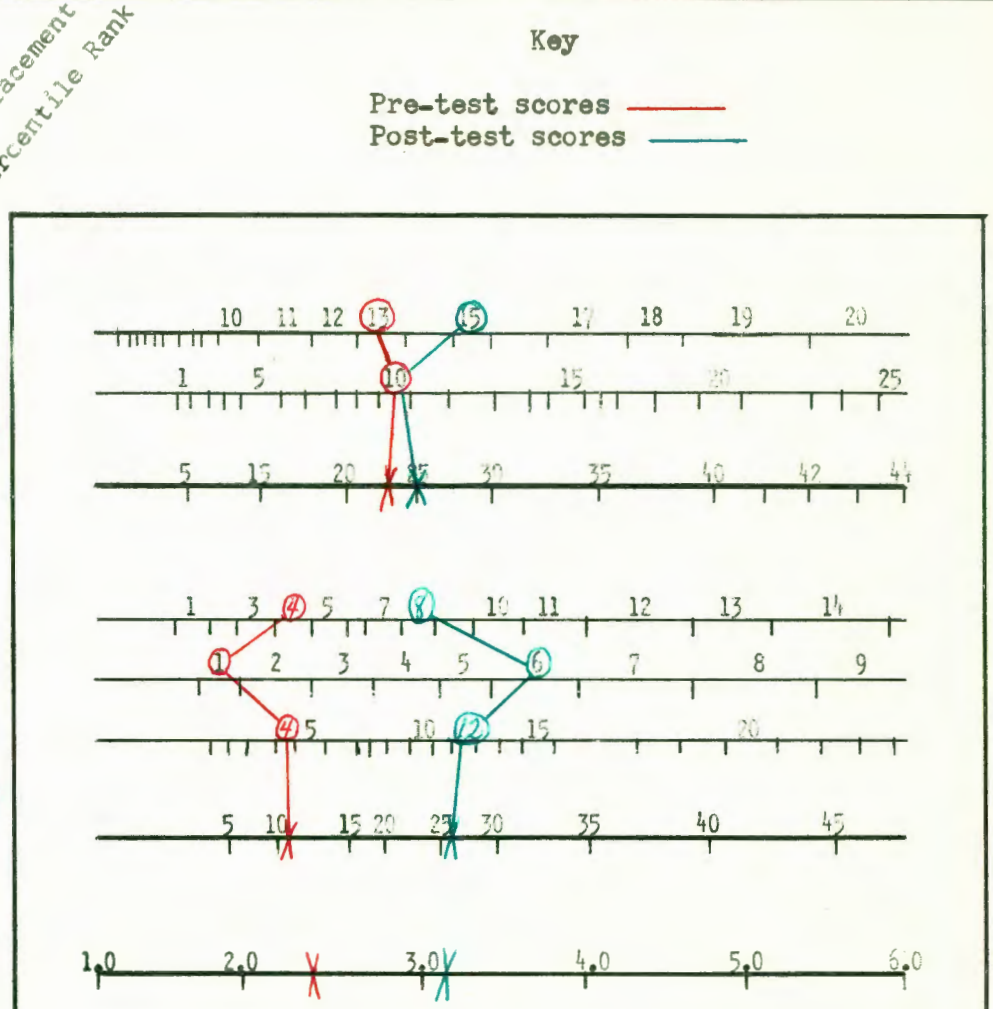


FIGURE 5

SUBJECT E: PRE-TEST AND POST-TEST RESULTS

Test	Section	Possible Score	Pupil's Score	Grade Placement	Percentile Rank	Pupil's Score	Grade Placement	Percentile Rank
READING VOCABULARY	A. Word Recognition. . .	.20	13			15		
	B. Meaning of Opposites.	.25	10			10		
	TOTAL (A+B)	.45	23	2.8	20	25	3.0	20
READING COMPREHENSION	C. Following Directions.	.15	4			8		
	D. Reference Skills. . .	.15	1			6		
	E. Interpretations . . .	.25	4			12		
	TOTAL (C+D+E)	.55	9	2.0	5	26	3.2	30
	READING GRADE PLACEMENT			2.4	5		3.1	30



gains, computed by subtracting the pre-test grade placement on the California Reading Test from the post-test grade placement scores are shown in Table II.

TABLE II

GAINS ON CALIFORNIA READING TEST

	A	B	C	D	E	Mean
Reading Vocabulary	.5	.6	1.0	.7	.2	.6
Reading Comprehension	.2	.7	.6	1.3	1.2	.8
Total Reading (Average)	.4	.7	.8	1.0	.7	.7

Gains in the Vocabulary Sub-tests showed a range from a low of 2 months to a high of 10 months. Comprehension scores showed two subjects with a gain of more than a year; subject D with 1 year 3 months and subject E with 1 year 2 months. The lowest comprehension gain was 2 months. The mean gain recorded for reading vocabulary was 6 months, and for comprehension 8 months, making a total mean gain of 7 months for both reading scores.

Significance tests. A test of significance of the difference between the means for the vocabulary and comprehension tests yielded a value of $t = 4.03$ for vocabulary, and $t = 4.37$ for comprehension. Both of these t values are significant beyond the 2 per cent level of confidence, on a two-tailed test.

Pre-Test. The pre-test which contained the 72 words presented in the program, was given again after the program was completed (Appendix D, p. 67). Table III shows the number of words read correctly by each subject before and after taking the program, and shows the net gain of words read correctly, Subject E showed the most gain with 55 words, while Subject B with a 42 word gain was the least.

Practice Sentences. The Practice Sentences (Appendix D, p. 69) were read after finishing the program. There were 42 sentences with a total of 228 words, all of which had been presented in the program. Subject A missed 5 words, Subject B 4 words, Subject C 7 words, Subject D 5 words, and Subject E 5 words. When asked to reread the sentences in which they had missed words Subjects B, D, and E read all of these sentences correctly. Subjects A and C each failed to read only one of the previously missed words.

The Post-test. As per instructions, the post-test (Appendix D, p. 68) was given after unit 5. None of the subjects missed any of the 8 single letter sounds. Of the 23 words presented in units one through five, Subjects B, C, D, and E each missed one word and Subject A read all the words correctly.

The remaining section of the test consisted of 8 words which had not been presented but the phonetic parts had been

TABLE III

GAINS AS SHOWN ON PROGRAM'S WORD PERCEPTION TEST

Subjects	No. of Words read correctly pre-program	No. of Words read correctly post-program	Net gain of correctly read words
A	22	72	50
B	24	66	42
C	24	68	44
D	23	66	43
E	13	68	55

as they were broken down in the test. Subject A missed 3 words, subject B 4 words, Subject C 3 words, Subject D 4 words, and Subject E 5 words. A break-down of the words and how many times each was missed follows:

bring	3	singing	
pat	2	brat	3
ban	4	ringing	
sin	3	bin	4

None of the Subjects knew the meaning of "ban," four did not know the meaning of "bin," and two did not know what "sin" means.

III. TIME AND ERROR DATA

Table IV presents the time and error data per unit for each subject. The time required by the pupils to work through the whole program ranged from about 22 to 25 hours. These measurements are approximate due to the inclusion of time required to correct machine malfunctioning[1] and to number answer sheets. The time was the same for all subjects for the first 5 units. These units were shorter than units 6 through 10. Also units 1-5 were done with the aid of the proctor which influenced the pace. During the last 5 units the subjects proceeded at their own rates of speed.

In addition to the time recorded in this table the instructor gave each subject approximately one-half hour at

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[1]The frequent malfunctioning of the Min/Max III machines were all of the same type: The pages would fail to feed into the lower tray and would crumple together in the rear of the machine between the large rollers and the lower tray. When notified the company replaced every machine by a new one.

TABLE IV

TIME AND ERRORS PER UNIT

Unit No.	No. of frames per unit	TIME[2] A	B	C	D	E	ERRORS A	B	C	D	E
1	79	1	1	1	1	1	0	2	0	0	0
2	81	1	1	1	1	1	0	0	0	1	1
3	87	1	1	1	1	1	0	1	0	2	0
4	74	1	1	1	1	1	1	0	0	0	1
5	118	1.5	1.5	1.5	1.5	1.5	0	0	1	0	2
6	265	4	4	4	4	3	7	0	4	2	5
7	265	4	4	3.5	4	3.5	1	0	0	1	2
8	263	4	3.5	4	3.5	5	0	0	0	3	5
9	260	4	4	4	3	3	0	1	2	0	4
10	210	3.5	2.5	3	2	3	5	1	3	1	7
TOTALS:		25	23.5	24	22	23	14	5	10	12	25

[2]Time in hours per unit. Measurements are approximate due to inclusion of time required to correct machine malfunctions and number answer sheets.

the end of each unit. This time was used for drill, games, and other activities as suggested in the program. (Appendix B) The table does not include time the subjects spent playing games with each other.

Errors were calculated from the answer sheets for units 5-10. Each subject made a crayon line through the number of a frame in which he made a mistake. Answer sheets were not used for units 1-4. The proctor recorded errors as they were made. The range of errors was from 5 to 26 with a mean of 13. Subject E, who made the most errors, refused to check his answers after he started to work independently. The proctor checked all of Subject E's answer sheets. The accuracy of the other four subjects' checking for their own errors was supervised by the proctor.

IV. ANECDOTAL RECORDS

Resumés of the observations for each child are considered relevant to the study. Accordingly, anecdotal records were made of the subjects' reactions to the programmed learning situation.

Subject A. While working on the first 2 units this girl expressed the idea that, "this is fun." When playing the "Sound The Word Game" after unit 2, this girl's attitude, facial expression, and tone of voice showed delight and enthusiasm at being able to choose the words while the proctor found the pictures. When preparing to play the same game

after unit 3 her comment was, "Do we have to do this again?" The proctor asked if she was tired of it, and she answered, "yes." After units 9 and 10 she asked to play this same game again.

During this girl's first four days of independent work she did 12 pages per day though she would have had time to do 18 to 24 pages without difficulty. When she had done her usual 12 pages she played a game with one of the other children or the proctor. When she found out that the other subjects had been working more pages and were ahead of her, she became quite concerned about "catching up" with them. This subject generated the game, "I'm thinking of a word that begins with a buh sound." The subjects played this several times of their own accord, using words in the program.

Subject A said that she liked reading from the program better than reading from a book, "Because you can guess at the answers."

Subject B. This girl's overt reaction to the program was negligible. Her only voluntary comment was at the conclusion of unit 8 when she called to the proctor's attention the fact that she had made no mistakes since starting to work independently. She seemed to be very proud of this fact.

The regular teacher said that Subjects A and B seemed to have more confidence since taking the machine program, but that there was no noticeable change in their school work.

Subject C. This boy's IQ was 115, the highest of the five subjects. (Table I, p. 14) He showed enthusiasm for the program from the beginning by stating that, "This is fun," and in choosing the answers quickly. He started saying "check" when he checked his answer and it was correct. This habit spread to the other subjects. During unit 3 this child had a difficult time concentrating on the program. His interest turned to the mechanics of the machine. He asked questions about it--how the paper went past the window, how the paper got into the tray below so it could be taken out, and how many pieces of paper there were in the machine. This boy's interest in the machine continued throughout the rest of the program and he became adept at putting the papers into the machine and taking them out.

During units 3, 4 and 5 subject C asked when he could start working the program by himself. When he started to work independently (unit 6) he attacked his work with enthusiasm, refusing to play the word games when invited to do so by the other subjects.

The regular classroom teacher reported that subject C showed an increased interest in reading, that he voluntarily read aloud as part of a book report which he had never done before, and that he put forth more effort in his school work generally. This child's mother also reported an increased interest in reading after starting the program.

Subject D. This boy vacillated from being enthused, laughing, outgoing, stating that the work was "fun" "easy" to being bored and saying so. This child's moods changed from day to day and he was outspoken in stating exactly how he felt about the whole program. He thought it was, "great fun" to be able to pick the words in the "Sound The Word Game" and have the instructor find the picture. He did not like the flash card drills, accompanying them with moans and groans, a lackadaisical manner, and the statement that he was bored.

While subject D was on unit 6 near the end of one learning period he asked if he should start another page. When given an affirmative answer, he said, "If I WANT TO," and promptly took another answer sheet and continued his work.

The regular teacher reported an increased general interest in school work for Subject D, saying that he "tries harder" and is happier. This change occurred during the time he was taking the reading program. He also did arithmetic on his own initiative and finished some of his papers which he had never done before. The language teacher confirmed these attitude changes with the fact that in language class he couldn't write a sentence and wouldn't try prior to the program. He began to write the language class short stories during the programmed learning experience.

Subject E. This boy worked alone with the proctor during units 1-5. He listened to the phonetic sounds and

words presented in these units, and often repeated them aloud, listening to himself, even when the program did not call for the learner to do so. He was interested and enthusiastic during the first 5 units. After starting to work independently his interest waned abruptly. He refused to check his answers. His errors increased markedly--from 2 errors in the first 5 units to 23 errors in the last 5 units. He was indifferent and unenthusiastic in his accomplishment of the remainder of the program.

Subject E's language teacher said that previous to his starting this program he was at a loss to know what to write, but now he is eager to write. For one assignment he had written 2 pages.

Critical Observations. At the beginning all of the subjects were interested and enthusiastic over this new way of learning to read. Their interest appeared to wane during the last part of the first 5 units, reviving again when they started to work independently (unit 6). When given the choice of working on the program or playing the suggested games the trend was to work on the program.

The subjects always enjoyed playing the "Matching" game. They also liked to find letters and words they knew in a magazine as suggested in the activities. (Appendix B, p. 60) The flash card drill game was only moderately well liked, and none of the subjects learned the isolated short vowel sounds

on flash cards. They gave the name of the letter, or realizing that the name of the letter was not the short vowel sound, didn't have an answer.

CHAPTER V

MEANINGS AND IMPLICATIONS

The program did work with these third-grade children. All of the subjects showed significant improvement in their reading ability. Their other academic activities also reflected a positive improvement during the time that they were working on the program.

The program is a useful and efficient adjunct to the teacher's armamentarium in teaching children who have basic remedial reading problems. The children enjoyed learning to read with the program. This success experience was apparently rewarding to them, and encouraged them.

I. CRITICISMS

Only minor flaws were noted during this evaluation of the program.

Learner interest. The fact that the subjects were initially interested in the program, their interest waning toward the end of the first five units and reviving in unit six, indicated that the work of the introductory units (1-5) was in excess of the needs of most of the members of this group.

Games and drills. The "Sound the Word" game met with initial enthusiasm, but after the subjects learned the words

their interest dropped off. Apparently the limited variety possible in this game was conducive to monotony and loss of interest.

The subjects enjoyed playing the "Matching" game, a bingo type game in which capital and small letters are matched. Since these children already knew the letters, the investigator felt that part of the time used for this game could be better spent playing phonics and word games.

The flash card drill game was only moderately well liked because of the repetitious and monotonous quality of the drill.

It is necessary to realize that these criticisms regarding limited variety stem from the restrictive nature of using the program in an evaluative situation. To obtain as accurate as possible an evaluation of the program per se, it was necessary to refrain from any deviations that would have introduced extraneous variables with consequent reduction of the validity of the study.

Supplemental variety. It is reasonable to expect that most teachers utilizing this program in a normal classroom teaching situation with program evaluation at best a secondary aim, would probably have and use other supplementary materials, and not rely entirely upon the materials furnished with the program. Some good sources for ideas on how to introduce variety into necessary exercises and drills are:

1. Improving Reading Instruction by Donald Durrell (5:73-81, 84-88, 196-217, 233-243).
2. Reading Aids Through the Grades by Russell and Karp (17:8-15).
3. Strengthening Reading Skills with Instructional Games by Wagner and Hosier (23).
4. Skill Games to Teach Reading (21).

Some commercially available games suitable for supplementing the program materials are: The Dolch phonics games published by The Garrard Press, Champaign, Illinois.

1. What the Letters Say
2. Consonant Lotto
3. Vowel Lotto
4. Take

Milton Bradley Company, 74 Park Street, Springfield, Massachusetts.

1. Economa Word Builder
2. Phonic Word Builder

Machine malfunction. The chronic malfunction of the program paper failing to feed into the lower tray and getting jammed between the large rollers and the tray, interferred with the efficiency of the learning situation. It resulted in an annoying loss of time and rapport between student and program while the machines were opened and the paper cleared, smoothed, and replaced correctly in the machine. This was the only malfunctioning experienced, but it was frequent. The symptoms indicated a design defect rather than operator error.

Technical inperfections. The program states that the vowel sounds are not isolated; that they appear as parts of larger units. However one of the suggestions following units 6 and 7 is to put the vowels on flash cards. (Appendix B) None of the subjects learned these isolated short vowel sounds. They gave the name of the letter, or, realizing that the name of the letter was not the short vowel sound, didn't have an answer. Dolch says that "The short sounds of the vowels are not in the names of the vowels, and hence some way must be found to help the child remember them. The usual way is to give a key word, (4:255).

Frame 259 of unit 6 is reproduced here:

T HE T HUMB			
T	T	H	HE

The TH sound is a digraph which is by definition a two-consonant combination that represents one sound (10:363). This being true it should not be separated as shown in the frame. This inaccuracy of usage is of questionable value in teaching these words.

Here is a reproduction of unit 6, frame 255:

TH E TH IN			
TH	E	TH	IN

The implication here seems to be that the TH in THE and in THIN have the same sound. Harris uses these examples of the two sounds for the th digraph:

th sometimes unvoiced (thin)
th sometimes voiced, soft (then, the)(10:363).

Webster also bears out this difference: thĭn ~~thĕ~~

Unit 8 frames 255 and 256, and frames 137 and 138 of unit 10 have ball / ball oon with the implication that the ball in balloon has the same sound as the word ball. Webster gives these diacritical markings for ball and balloon:

ball bôl
balloon bə lo͞on′

These are minor differences in pronunciation, and apparently did not interfere with learning to read the words. While these differences are trivial, they are technical imperfections.

II. ERROR ANALYSIS

Error rates. The errors per unit as recorded in Table IV, p. 28 ranged from a high of 25 errors (or 1.5%) to 5 errors (or .3%). This is a mean error rate of .76 per cent. The largest error rate for any one student was 3.3% per unit. This was well below the maximum of 10% errors considered allowable in programmed learning (13:VIII).

An analysis of the errors for correctable factor revealed no dominance of any particular factor.[3] It is apparent that the publisher's development of the program was sufficiently thorough to produce a program that is well within recommended error tolerance.

There is one exception to the above. All the children had trouble with frame 54 of unit six. It is reproduced here:

s ing s kate			
s	s	ing	kate

Two subjects made errors on this frame and the other three asked for help because they did not know what to do. As the answer indicates, the like beginning letter s was the correct response. However, because the endings for both of the words were also given the subjects did not know what was being asked for. This was the first frame in which all the parts of the words were given as response choices.

Subject A, who made a mistake on the above mentioned frame, but who checked her answers, made two additional mistakes of the same type in unit six. She made no more errors of this type in any of the subsequent units.

---

[3]The errors were about equally distributed over the various types of frames: picture match word, word match word, matching beginning sounds or endings, filling in a blank, or matching a picture to a phrase or sentence.

Subject E, the boy who would not check his answers, was the other subject who missed this same frame. He missed eleven frames of this type throughout the remainder of the program. It would seem from this that even if a child does not understand what is wanted in a particular frame that he would soon learn if the answers are checked.

Even though Subject E made the most errors, (Table IV, p. 28) and would not check his work, his rate of errrors, 1.5 per cent, was well within the tolerance rate of errors. He also profited from the program with a total reading gain of 7 months, (Figure 5, p. 23) and there was noticeable improvement in his other language work.

Phonetic transfer problem. In the third section of the post-test (Appendix D, p. 68) consisting of eight words not presented in the program, but which phonetic parts were presented, the subjects missed an average of four words each. Silberman experimentally analyzed the error factor in this identical situation (19:4,7). He found that his subjects, instead of associating the phoneticized response with the whole trigram, perceived them as two entities. Consequently, his subjects had no success on the transfer words although they could read the program words. He found this phoneticizing method used in the program to be ineffective in teaching the pronunciation of trigrams. He experimentally tried several methods, and found that a simple combination of an echoic and

fading procedure to be the most effective procedure for teaching the amalgamation of the sound elements.

> For example, at first /m/ /an/ /man/ was echoed rhythmically by the child. Later he responded to /m/ /an/ with /m/ /an/ /man/. It was found particularly important here not to allow the child to continue with the program until this segment had been completely mastered. When children faltered on this segment, they were branched back and given extended practice until their pronunciation was brought under control of their own phoneticization.
>
> At this point, children taking the program were still unable to cope with the transfer words. Special practice in making the transfer to novel trigram combinations within the program had to be given before they were able to decode the novel combinations on the criterion test. This practice was accomplished by omitting the feedback stimulus following four selected words within the program. If the child was unable to sound out and read these words, he was branched to familiar review words that contained the elements of the novel word, he was branched to other familiar words that rhymed with that word. Then he was led through the sounding out procedure step-by-step once again for another chance at it before he was given the correct pronunciation. This procedure was repeated for each of the four words (19:7).

III. TRANSFER EFFECTS

The regular classroom teachers reported that the three highest IQ subjects, (C with 115, D with 95, and E with 100) showed a "noticeable improvement" in their other school work during the time they were working on this programmed reading course. The two lowest IQ subjects, (A with 82 and B with 84) were reported as having, "more confidence" in their classroom learning situation. Although these observations are not measured or quantified results, they are indicative of positive

improvement very likely attributable to the programmed learning experience. For the three higher IQ subjects, there is an indication that learning techniques they developed with the reading program and/or the success they experienced had a positive carryover into their attitude and work in other academic subjects.

IV. RECOMMENDATIONS

Use in the classroom. This program can form a substantial foundation in teaching reading while this method is being used for the length of the program instruction, supplemented with, appropriate library books, drills, games, and other devices as the teacher sees that individual students need additional practice. It could also be used as supplementary material, to be worked on independently as children have time, in addition to regular class work.

One program can serve more than one pupil if the various pupils using it are working on different units, or the same program and machine may be used for several students if a staggered time schedule is arranged.

Programming for individual needs. Birnbrauer, et al. in their direction of the programmed instruction classroom for young markedly retarded children at Rainier School, have come to the conclusion that a single program will not satisfy the needs for individual learning in programmed reading. The single program places an unrealistic and unnecessary constraint

upon both pupils and programmers. The Birnbrauer group has attacked this problem in programmed reading by developing a set of integrated programs. By placing sight vocabulary in one program and phonics in another, for example, the students can maintain their own rate in each program without being forced to repeat items already learned. Alternate programs to teach the same skills are also being used. Various forms of the reading program introduce 1, 2, 4, and 6 new words per set to accommodate the various rates at which the students learn (1:1-2).

Based upon his experience with the problem of individualizing programmed reading instruction, Cohen contends that, "Hundreds of specific programs designed for hundreds of specific skills that can be instantly matched to student needs," are required. The single program only perpetuates the status quo of mass education for the majority (2:3).

The writer's own observations lead to this same conclusion. This study, using only five subjects indicated five different sets of individual needs in the various units. For example: Subject C turned his attention from the program to the machine during units 3, 4, and 5, and Subjects A, B, and D became disinterested in the program during units 4 and 5 indicating that these children did not need as much linear sequence as the program demanded. There was evidence that Subject C with an IQ of 115 did not need as much repetition

to learn the program content as subjects A and B with IQs of 82 and 84. When Subject E had individual attention during the first five units he was interested and participated completely. When on his own, his interest in participating dropped off to the point of continued failure to check on his own accuracy and attempts to distract the other subjects. His behavior showed that the program did not fit his needs. And, there were other indications that the program content and/or level of content did not meet the different needs of the individual subjects.

Cohen says that when publishers use the average of a group as the guides to developing reading programs they are making the same error that basal readers have been doing for decades. They design methods for groups not for individuals.

At the international reading association meeting in 1962, Dr. Donald Durrell set forth four criteria of good methodology for programmed instruction. They are reported by Cohen as:

> Criterion 1. Programs must meet individual student needs. Unless the student is learning new skills, content, attitudes, or perceptions, he is not using his time and energy most efficiently. Thus a program is valuable if its content meets individual needs.
>
> Criterion 2. A program's level of content must be tailored to the individual student's level of capacity and achievement.
>
> Criterion 3. A program's speed of teaching must be matched to the individual student's learning rate.

> Criterion 4. A program must intensify learning by maintaining a high frequency of student response. Thus, the student is always working and always responding. He never has to wait his turn, for he is always on the spot (2:3).

It is obvious that it would be virtually impossible for a single program to fulfill these criteria. Programming of reading instruction can, if developed specifically for the individual and not the group, ultimately allow for the problem of individual differences.

A recommended self-instructional reading center. Cohen also gives an outline for the self-instructional reading center. Based on a detailed diagnosis, each student begins a core program at the level of his needs. Working by himself, or in a small group with like needs, he proceeds at his own pace. Studying is done at skill stations in a learning center. The core program is supplemented by remedial programs, extra instruction, enrichment, and acceleration. Various modes of instruction, materials, and techniques are used, the teacher being one of these modes of learning. The teacher also supervises, matching materials and techniques to individual needs. His job is to:

1. Arrange superior conditions for learning by building a 'therapeutic classroom atmosphere' in which students risk behavior change.

2. Teach students how to teach themselves.

3. Insure success by carefully matching needs and materials.

4. Diagnose, guide, interpret, and evaluate growth. This is done in conjunction with the student, as service to him, not as a judgment of his worth.

5. Supply on-the-spot first aid when materials do not work or are unavailable.

6. Develop new materials to anticipate the problem in the future.

7. Personally interact with individuals and small groups.

8. Group and continuously regroup small learning teams according to needs.

9. Introduce as many enrichment experiences as the creativity and resourcefulness of the teacher allow (2:3,6).

This is the ideal as Cohen sees it.

CHAPTER VI

SUMMARY

As our technological society increases its demands for more and more education for its citizens, the problem of the child who fails to learn to read becomes increasingly acute.

Automated learning offers one possible solution to the methods problem of teaching individual remedial readers in the primary grades. The effectiveness of the TMI-Grolier self-tutoring program, "First Steps in Reading for Meaning," was evaluated. This program is designed to be used in the Min-Max teaching machine.

All five subjects completed the program within the publisher's stated time and the accepted error tolerance. A mean of 23.3 hours was required to complete the course; the mean error rate was less than one per cent.

Alternate reading section forms of the California Achievement Test, upper primary level, were used to evaluate the subjects' pre-program and post-program reading ability. The reading ability of all of the subjects improved. The mean gain for the two months evaluation period was 7.6 months. This mean gain was significant at the .02 level of confidence.

In general the program is an effective and useful method for teaching remedial reading. It fulfills the publisher's claims. However, the program has no tolerances for

individual needs. All learners are required to complete the entire program sequentially.

There was a chronic problem of the paper not moving through the machines (Min-Max III) correctly. The paper would fail to feed into the lower tray and crumple up between the large rollers and the tray. Need for more improvement in the mechanics of the machine is indicated.

Some minor technical flaws in accepted English usage were detected in the material presented in a few of the frames.

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APPENDIX

APPENDIX A

CONTENTS[3]

UNIT ONE	The student becomes acquainted with the machine and is shown where to find the question, where to find his choices of possible answers, and how to confirm his answers. This unit teaches the word AT and the word AN.
UNIT TWO	The sounds of B and C and the word BAT are taught.
UNIT THREE	This unit introduces the sound of R and teaches the words CAT, CAN, RAT, and RAN.
UNIT FOUR	Unit Four teaches the sounds of H and UG and teaches the words HAT, HUG, BUG, and RUG.
UNIT FIVE	Here the sounds of the letters P, S, F, M, and ING as well as the words PAN, IN, PIN, RING, SAT, SING, FAT, FIN, FAN, MAT, AND MAN are taught.
UNIT SIX	New words introduced in this unit are BOY, BLOCK, MOP, BED, RABBIT, SKATE, SPOON, FISH, FORK, CLOCK, LOCK, SOCK, BALL, WALL, HOUSE,

[3]Pages 54 through 70 have been reproduced by permission of the publisher.

HAND, HALL, FALL, MONKEY, AND, BELL, THUMB, THIN, and THE. Word combinations taught in this unit are CAT AND BALL, FORK AND SPOON, and FAT AND THIN.

UNIT SEVEN — TREE, TABLE, GUN, RUN, DOG, DISH, CAKE, RAKE, NOSE, AFTER, CUP, UP, and TO are introduced in Unit Seven and several word combinations using these words are learned.

UNIT EIGHT — The words GATE, TOO, CHAIR, GIRL, ON, IS, WAS, MOON, and BALLOON are introduced in this unit as well as several word combinations and sentences.

UNIT NINE — COW, NOW, ARE, and WERE are introduced. Also plurals such as BOYS, HATS, and CATS are taught here, as well as several word combinations and sentences using these words.

UNIT TEN — New Words in Unit Ten are HAS and HAD. Three new sentences are presented, and the entire course is reviewed.

APPENDIX B

ACTIVITIES

PICTURE IDENTIFICATION

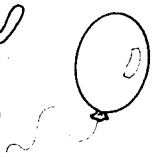
The purpose of these pages is to help the student identify the correct name for each picture. For example, in this course we use the word *dish*, not *plate*, *cat*, not *kitty*. Go over these pictures with the student, repeat those that cause the student trouble. The only right words are written underneath the pictures. Do not try to make the student attend the words at this point.


GIRL

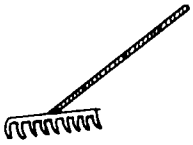

RING


CAN


CAT


BALLOON


BALL


RAKE

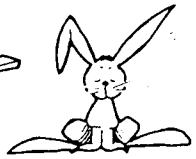

BAT


MONKEY

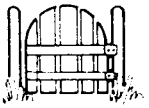

TREE


GUN

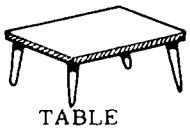

SPOON


RABBIT

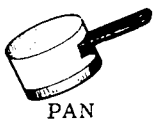

SOCK


GATE


CUP



TABLE


PAN


DOG


FAN

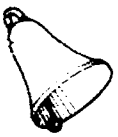

CHAIR

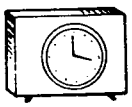

HOUSE


PIN


BLOCK

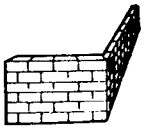

HALL

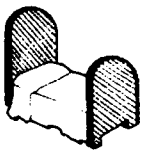

BELL


CLOCK


FORK


HAND


WALL


BED


FISH

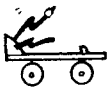

MOON


LOCK


NOSE


MAN


RAT


SKATE


DISH


THUMB


BOY


HAT


CAKE


MOP


COW


SING


BUG


SAT

MAT


FAT


HUG

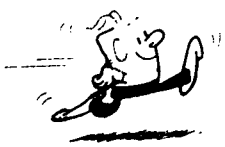

FALL


THIN


RUG


FIN


RAN


RUN

ACTIVITIES

UNIT ONE

A. After completing the first 35 frames in Unit 1, turn to Picture Identification on page xii, and follow these five steps for playing the "sound the word" game.

Instructions for the "sound the word" Game

Step 1 - Instructor calls out names of objects randomly. Student points to object.

Step 2 - Instructor points to objects randomly. Student calls out appropriate name.

Step 3 - Instructor phoneticizes words. For example, if the instructor says "cuh-at," the student should point to the picture of a cat. To the sound "err-at," the student should point to the picture of a rat.

Step 4 - Instructor phoneticizes a word. Student repeats actual word. For example, instructor says "Puh-an," student answers, "pan." (No picture needed.)

Step 5 - Student phoneticizes word of his own choosing and instructor answers with actual word. For example, student says "buh-ed," instructor answers, "bed."

This game is important in that it teaches the child to go from phonetics to the actual word. The first day spend about five or ten minutes with the child performing steps 1, 2, and 3.

B. After completing all of Unit 1, proceed as follows.

Child has learned words AT and AN.

Take 3 x 5 cards or slips of paper and write AT on five of them and AN on the other five. Shuffle these cards and draw one card at a time randomly. Have the student read each card. Make up a game where the student gets a small reward if he gives ten correct answers in a row.

Spend another ten or fifteen minutes familiarising the student with all five steps of the word game. This game should be played often, anywhere and anytime. Do this while riding in the car, before going to bed, at the breakfast table. Steps 4 and 5 may be difficult to teach but are well worth the effort.

UNIT TWO

Write the letters B and C, and the word BAT on three 3 x 5 cards. Mix these in with the cards you have for AT and AN. Use cards as you did after Unit 1.

Take five minutes to play the "sound the word" game.

UNIT THREE

Make cards for R, CAT, CAN, RAT, and RAN and mix with other cards. Leave only one AT and one AN card in the deck. You should now have 10 cards. Let the student carry these cards around with him so that he can show off his newly acquired skill. Continue playing the word game at every opportunity with as many new words as you can.

UNIT FOUR

Make cards for H, UG, HUG, BUG, AND RUG. Have student identify these five cards consistently before adding them to the stack of ten cards you already have.

Play the "sound the word" game.

UNIT FIVE

Make cards for P, S, F, M, IN, PAN, PIN, ING, RING, SAT, SING, FAT, FIN, and FAN.

Give the student the post-test for Units 1-5 on page xviii.

Students should now be able to read most of these words. Use cards to practice those words with which he has trouble. It is important that you give the student a chance to show off his new skills. In fact, it is a good idea to pay special attention to the child whenever the topic of reading is concerned. Have him point out letters he has learned in signs, magazines, and newspapers. There is no rule that says all his learning should come through the course. When you do teach him a new letter (outside the course), emphasize the phonetic sound of the letter rather than its name. Before going on to Unit 6, turn to page xxi and read the instructions for playing the Matching Game.

UNIT SIX

Teach student to find lowercase and uppercase T's in a magazine. You should be able to point to one and have him give you the sound as "tuh." Do the same for the letters A, U, and I. (Note: To begin with, teach only short vowel sounds such as A as in CAT, U as in UP, and I as in IN.)

Play the "sound the word" game and the Matching Game.

UNIT SEVEN

Teach student remaining two vowels, E and O (E as in MET, O as in HOT). Put all letters learned so far on flash cards. These letters should be A, E, I, O, U, B, C, R, H, P, S, F, M, and T. Let the student keep his own set of flash cards with him. Make sure he gets a chance to show off!

Play the "sound the word" game and the Matching Game.

UNIT EIGHT

Use flash cards to teach the letter sounds P, K, L, and W (upper- and lowercase).

Play the "sound the word" game and the Matching Game.

UNIT NINE

Use flash cards to teach the letter sounds Q, J, N, and V (upper-and lowercase).

Play the "sound the word" game and the Matching Game.

UNIT TEN

Keep practicing with all flash cards. Help student sound out new words.

Play the "sound the word" game and the Matching Game.

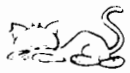
APPENDIX C

SAMPLE PAGES OF THE PROGRAM

6

"This is another cat.
You find one and touch it."

(Point) "Is this the same as the one you touched?"



7

"This time I want you to find another rat, just like this one." (Point) (If student does not touch an answer, say, "Touch another rat.")

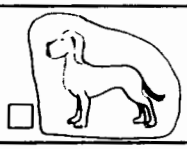
"Were you right?"

8

"Do the same thing here." (Wait)
"What is this picture of?" (Wait)
"That's right. It's a rat.
Touch another rat."

9

"Touch another dog."



10

"See if you can do this by yourself."
(If not, say, "Find another frog.")

1-2

PRINTED IN THE U. S. A.

6

(Emphasis on T)
"This is the word at." (Point)
"Can you touch the word at?"

AT

"Were you right?" (Wait)
"Say the word at."

✪ AT

✪ AT ▲ AN

7

"Touch the word at."

"What is this word?" (Point)
(Wait) "This is the word at."

▲ AT

✪ AN ▲ AT

8

(Emphasis on N)
"This is the word an." (Point)
"Can you touch the word an?"

AN

"Were you right?" (Wait)
"Say the word an."

▲ AN

✪ AT ▲ AN

9

"Touch the word an."

"What is this word?" (Point) (Wait)
"This is the word an."

▲ AN

✪ AT ▲ AN

10

"What word is the cow sitting on?" (Wait)
"That's the word at."

★ (One star for a correct answer.)

PRINTED IN THE U. S. A.

61

✪ can ▲ cat

✪ can

62

✪ fan ▲ boy

✪ fan

63

fan

✪  ▲ 

64

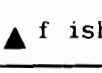
f an

✪ c an ▲ s ing

✪ c an

65

f an



✪ r abbit ▲ f ish

▲ f ish

196

☐ HAND	✪ AND	☐ HAND

197

FORK ___ SPOON

▲ AND	✪ CAT	▲ AND

198

cat _____ ball

✪ and	✪ and	☐ hat	▲ boy

199

fork _____ spoon

▲ and	✪ hand	☐ oy	▲ and

200

_____ and spoon

☐ fork	✪ spoon	☐ fork	▲ and

6-40

121

The cup is on the table. ☐

☐ The cup is on the table.

122

The _____ is on the table.

☐ cup

✪ chair ☐ cup ▲ cat

123

The cup is on the _____.

✪ table

✪ table ☐ hat ▲ tree

124

The cup ____ on the table.

✪ is

✪ is ▲ cat

125

The cup ____ on the table.

✪ is

✪ is ☐ on ▲ the

APPENDIX D

PRE-TEST

1. girl
2. ball
3. gun
4. cup
5. chair
6. bell
7. bed
8. man
9. boy
10. ring
11. rake
12. spoon
13. table
14. house
15. clock
16. fish
17. rat
18. hat
19. can
20. bat
21. rabbit
22. pan
23. pin
24. fork
25. moon
26. skate
27. cake
28. cat
29. monkey
30. sock
31. dog
32. block
33. hand
34. lock
35. dish
36. mop
37. balloon
38. tree
39. gate
40. fan
41. hall
42. wall
43. nose
44. thumb
45. cow

PRE-TEST

Before starting the student on the course, test him to be sure that he does not already know these words. Mask this page with a piece of paper so that only one word at a time shows when administering the test.

AND	FORK	GUN	GO
COW	MOP	NOW	CLOCK
IS	SING	THIN	UP
RAKE	BUG	GATE	HAND
AN	BAT	BELL	RING
AFTER	FAN	RUG	WALL
DOG	MOON	GIRL	CAKE
IN	SAT	ON	HALL
LOCK	BLOCK	PAN	RAT
SKATE	FAT	THE	FIN
ARE	MAN	CAT	MAT
DISH	SOCK	TREE	CUP
MONKEY	BALL	HAT	HAS
SPOON	HUG	PIN	RAN
AT	FALL	TABLE	CHAIR
BOY	NOSE	CAN	HAD
FISH	THUMB	HOUSE	RUN
BED	BALLOON	RABBIT	WERE

POST-TEST

Ask the student to give the sounds of each of these letters.

P	C	F
S	R	M
B	H	

Have the student sound out these words and read them.

PIN	FAT	FAN
CAT	SING	BAT
MAN	SAT	HUG
BUG	IN	CAN
FIN	RAT	AT
RAN	RING	RUG
MAT	AN	HAT
HAT	PAN	

With the exception of BRAT the words below have NOT appeared in the course. See how many the student can sound out and read.

B RING	SING ING
P AT	B RAT
B AN	RING ING
S IN	B IN

PRACTICE SENTENCES

1. Ring the lock.
2. The cat and the tree.
3. The cat ran after the ball.
4. The cats are on the chair.
5. The cat ran to the boy.
6. The dog is on the bed.
7. The dog sat on the block.
8. The dog ran to the hall.
9. The boy ran to the bat.
10. The cat had the balloon.
11. Bat the bell.
12. Run to the wall.
13. Skate to the man.
14. The cat can run.
15. The cat ran to the clock.
16. The dog is on the cake.
17. The man sat on the cup.
18. The cow is on the chair.
19. The boy sat on the dog.
20. The girl ran to the dish.
21. The man sat on the fish.
22. The fork is on the table.
23. The fan was on the table.

24. The fat man was on the table.
25. Fall off the gate.
26. The monkey has the gun.
27. The man has the hat.
28. The spoon is in the house.
29. The rabbit is in the hand.
30. Now the rabbit is in the hall.
31. Mop the table.
32. The cats are on the moon.
33. Now the monkey has the nose.
34. The cat had the pan.
35. The cat sat on the pin.
36. The rat is on the rake.
37. The spoon is on the table.
38. The cat can sing.
39. The sock is on the wall.
40. The thumb is thin.
41. The cats were on the cake.
42. The cat ran up the wall.

APPENDIX E

ANSWER SHEET

Name____________________ Date________________ Unit No.________

	☆	□	△		☆	□	△
	☆	□	△		☆	□	△
	☆	□	△		☆	□	△
	☆	□	△		☆	□	△
	☆	□	△		☆	□	△
	☆	□	△		☆	□	△
	☆	□	△		☆	□	△
	☆	□	△		☆	□	△
	☆	□	△		☆	□	△
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	☆	□	△		☆	□	△
	☆	□	△		☆	□	△
	☆	□	△		☆	□	△