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ABSTRACT

This study determined the effectiveness of a rapid reading program in improving comprehension and rate of approximately 300 fifth and seventh grade students. Repeated measures analyses of variance were used to compare changes in rate and comprehension during an eight week rapid reading program with three groups of students: those instructed by a rapid reading specialist or by their classroom teacher trained by the specialist, and a control group. Results indicated that reading rate of fifth graders significantly improved after instruction by either the specialist or the teacher. Comprehension of fifth and seventh graders did not increase significantly after instruction. (Author)

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APPLICABILITY OF RAPID READING INSTRUCTION TO THE MIDDLE GRADES

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Abstract

This study determined the effectiveness of a rapid reading program in improving comprehension and rate of approximately 300 fifth and seventh grade students. Repeated measures analyses of variance were used to compare changes in rate and comprehension during an eight week rapid reading program with three groups of students: those instructed by a rapid reading specialist or by their classroom teacher trained by the specialist, and a control group. Results indicated that reading rate of fifth graders significantly improved after instruction by either the specialist or the teacher. Comprehension of fifth and seventh graders did not increase significantly after instruction.

APPLICABILITY OF RAPID READING INSTRUCTION TO THE MIDDLE GRADES

From a primary focus on decoding skills and accurate word-oriented reading, after fourth grade the child increasingly must shift to thought-unit reading, the ability to read and understand units of increasing size and complexity. In addition, by fourth grade, the child should be able to read at a speed facilitating comprehension: silent reading has become more rapid than oral reading for the first time; and, with proper instruction, more growth in reading speed takes place than during any other period (Spache, 1963). The ability to grasp meaning from thought-units, while considered essential for good comprehension is also closely related to reading rate. Buswell (1922) and Judd (1918) believed that the mature reader is the rapid reader because he is unhampered by having to focus on short units of recognition and is therefore free to devote himself to thought interpretation.

The purpose of the present study was to assess the effectiveness of a reading program which taught skills of rapid reading to young readers during the critical stage of this transition to thought-unit reading. The goals of the More Effective Reading (MER) program were to improve reading speed and comprehension through the use of hand pacing, previewing and quick rereading of

selections, and a strong emphasis on recall patterns.

Research on reading improvement programs presents a good deal of evidence to support Huey's (1968) early contention that the reading rate of many individuals can be improved. There is less evidence indicating that comprehension is amenable to a similar degree of improvement. Most studies have been conducted with college students and adults. Traxler (1946) reported that a sample of college freshmen who were relatively slow readers raised their rate considerably after specific training in speed reading techniques; their comprehension after training showed no loss but little improvement.

McCracken (1960) taught eight gifted sixth grade students rapid reading skills by encouraging them to search for answers, to take note of topic sentences, to recall information stimulated by titles and contextual clues, and to consider the paragraph as the basic unit of thought. After nine lessons, the students improved dramatically in their mean rate but only slightly in their mean comprehension score. McCracken concluded that rapid reading skills can be taught much earlier than high school or college where they are usually offered.

The hypothesis of the present study was that the MER program, because of its emphasis on rapid reading of large thought-units, would improve both reading comprehension and rate. The assumption was that word-oriented reading slows the reader's rate, while increased reading speed involving the processing of larger thought units

would be accompanied by increased comprehension. The study also tested whether volunteer teachers from a school's staff, with training and support by a rapid reading specialist, could use the techniques of the MER program effectively with their classes.

Fifth graders were chosen for the study because the intermediate grades are described as a crucial time in the transition from knowledge of word meanings and letter-sound relationships to thought-unit reading (Smith & Dechant, 1961). While the program might have been presented to fourth graders, since the demands for independent reading begin to increase during this grade, the investigators were concerned with the possibility that some students may not have successfully mastered the sound-symbol relationships and would suffer undue hardship in a course that focused on reading for meaning. The alternative was to work with older children, namely fifth graders. Although the program was designed to be preventive rather than remedial, the effects of the program on seventh graders were examined in this study to determine whether the program would aid students who may have not mastered the reading skills critical to successful development in the intermediate grades.

Method

Sample

The subjects were drawn from schools in a suburban Boston community during the spring of 1972. The sample consisted of

159 fifth grade and 157 seventh grade students, divided fairly evenly into six fifth grade classrooms (two in each of three schools) and five seventh grade classrooms from one junior high school. The population in the school districts from which the sample was drawn consists mainly of working and middle class families. A diversity of ethnic backgrounds was represented, including many students of Armenian, Italian, and Irish descent.

Instruments

Before the study was conducted, norm-referenced survey instruments for measuring reading comprehension and rate were developed with fifth and seventh grade students who attended other schools in the same town. These tests were constructed in accordance with findings of previous research which indicated that valid measures of rate and comprehension require lengthy reading selections, a minimum of three minutes of reading time uninterrupted by questions inserted into the text, and an untimed administration (Smith & Dechant, 1961; Spache, 1963; Traxler, 1958).

Three equivalent test forms were developed for each of the two grades. Each test consisted of a fiction and a factual selection ranging from 1100 to 1500 words in length, with 14 multiple choice (four option) questions following each selection. Four types of questions were used, reflecting the objectives of the MER program: those requiring recall of main ideas, recall of minor details, recall of sequences, and ability to draw inferences. The tests were not timed, and students were able to read both selections and answer the 28 questions within a class period.

KR20 reliability coefficients for comprehension on the six test forms were found to range from .70 to .89. Details pertaining to item selection and test characteristics are presented in Corman (1973).

Comprehension was operationally defined as the percent of questions a student answered correctly on the total test (i.e., 28 items). Reading rate for each student was computed as the mean number of words read per minute during the first three minutes of reading time on each of the two selections.

Procedure

Three conditions, including two experimental groups and a control group, were used. Two fifth and two seventh grade classes received instruction by a rapid reading specialist (Condition 1), and two other fifth and seventh grade classes were instructed by volunteer teachers from the school's faculty who were trained by the reading specialist (Condition 2). The control group consisted of two fifth and one seventh grade class who received the regular reading instruction offered in their schools (Condition 3).

The instructional program for both experimental groups was conducted during an eight-week period. Students in Condition 1 were taught by the reading specialist in three half-hour sessions per week, representing a total of 12 hours of instruction. Teachers in Condition 2 were introduced to the principles and techniques of the program

in a six-hour workshop given by the specialist the week before the program began. Teachers and students were provided with handbooks written by the specialist to enable them, as well as their students, to become more familiar with the drills to be used. In addition, at the beginning of every week the teachers received a memo from the specialist which explained the procedures to be followed that week.

During the eight weeks of the program, students in the two experimental groups received drills in recall and in establishing coordination between the hand and eyes. Students were taught to use their hand as a pacer to promote rhythm and smooth reading of each page. Specific exercises were given in previewing material quickly before reading, reading at high speeds, and recalling ideas and details after reading. A variety of content was used for the drills, including newspapers, magazines, and textbooks.

Before and after the instructional program, each student, regardless of grade placement, took a fifth and a seventh grade reading rate and comprehension test. The two forms given each time represented two levels of difficulty because they were constructed on the basis of scores attained by students at a particular grade level (Corman, 1973). The order in which students received the test forms during pre- and posttesting was counterbalanced: every student was randomly assigned to a sequence group, which determined the particular fifth and seventh grade forms he

received on the pretest and the posttest.

During both test administrations, students were instructed to read for good comprehension. They were able to finish reading each selection before answering the questions. The examiner used a stopwatch and asked students to circle the word they were reading at the end of the first, second, and third minute of reading time. A student's rate was calculated as the mean number of words he read during these three minutes, and his comprehension score was computed as the percent of the 28 questions answered correctly.

In addition to these tests, before and after the program, all students were given the Reading Subtest of the Metropolitan Achievement Tests. Before the instructional program, fifth graders took Intermediate Form A and seventh graders Advanced Form A. After the program, students received Form B of the same level of the test.

Results

Comparability of Groups Prior to Teaching

Means and standard deviations on pretest comprehension, rate, and Metropolitan scores were obtained to determine the average level of initial reading achievement of the fifth and seventh grade students. These scores are presented in Table 1. Mean reading rates on the pretest indicated that fifth graders were reading as fast as seventh graders on tests at both difficulty levels. Grade equivalents corresponding to mean standard scores on the Metropolitan

Reading pretest showed that fifth graders were reading at grade level (5.3), while the seventh grade mean was below grade level on national norms (6.3). A similar finding was obtained with the sample from the same community who participated in the test development (Corman, 1973).

Insert Table 1 about here

One-way analyses of variance on pretest Metropolitan scores revealed no significant differences among subjects in the three conditions with regard to their initial level of comprehension as measured by this test (Grade 5: F = .79, 2/146 df; Grade 7: F = 1.13, 2/150 df).

Preteaching differences in comprehension and rate were examined in repeated measures analyses of variance for each grade. In these analyses among subjects factors were Condition (3 levels), Sequence Group (i.e., order of test forms, 2 levels), and Test Form (3 levels), and within subjects factors were Difficulty Level (fifth or seventh grade test) and Content (fact or fiction). Item Type (main idea, minor detail, sequence, or inference) was included as an additional factor in the analyses of comprehension scores.

Table 2 summarizes the results of these analyses for the fifth and seventh grade students. The absence of significant differences for all the among subjects factors (Form, Sequence Group, and Condition) on rate and comprehension

TABLE 1

Means and Standard Deviations on Pretest Rate, Comprehension, and Metropolitan Reading Test

		Grade 5			Grade 7		
	Difficulty Level	$\bar{X}$	SD	N	$\bar{X}$	SD	N
Rate	low	187.66	62.66	159	187.39	61.61	157
	high	179.25	60.17	151	180.64	65.20	156
Percent Comprehension	low	57.88	20.55	159	63.90	20.48	157
	high	46.19	19.90	151	52.38	23.01	156
Metropolitan	-	45.96	7.75	149	44.74	8.72	155

showed that: (a) scores were not dependent on the particular test form which the student received, (b) scores did not vary from one test form sequence to another (Sequence Group X Test Form interaction was also not significant), and (c) students in the three treatment conditions were initially performing at comparable levels.

Insert Table 2 about here

The significant effect of selection Difficulty Level for both samples indicated that students received higher comprehension scores on the fifth than on the seventh grade forms ($p < .001$). Difficulty level did not affect the reading rate of the fifth or seventh grade samples. Fifth graders did achieve higher comprehension scores on the fictional selection, and seventh graders read the fictional selections faster ($p < .01$). There was a significant difference by type of comprehension item ($p < .001$) among fifth and seventh grade samples. Across test forms, both fifth and seventh graders scored highest on questions referring to minor details and lowest on sequence questions.

Effectiveness of the MER Program

In order to determine the effectiveness of the MER program, the same repeated measures analyses of variance were performed on comprehension and rate with Test Session (pretest versus posttest) added as a factor. The interaction between Condition and Test Session indicates whether the

TABLE 2

Main Effects in Repeated Measures Analyses of Variance On Pretest Comprehension and Rate Scores

	Grade 5				Grade 7			
	Comprehension		Words per minute		Comprehension		Words per minute	
Effect	F	df	F	df	F	df	F	df
Test Form	1.288	2,114	1.593	2,115	1.153	2,125	2.866	2,131
Sequence Group	.207	1,114	.165	1,115	.250	1,125	.845	1,131
Condition	.846	2,114	2.204	2,115	.495	2.125	3.055	2,131
Difficulty Level	91.627**	1,114	1.232	1,115	47.728**	1,125	3.096	1,131
Content	15.617**	1,114	.081	1,115	1.260	1,125	7.812*	1,131
Item Type	87.623**	3,342	---	---	31.928**	3,375	---	---

*$p < .01$

**$p < .001$

pretest to posttest score changes of the experimental and control groups differ.

A summary of these analyses is presented in Table 3. As in the pretest analyses, none of the main effects of the among subjects factors (Posttest Form, Test Sequence Group, or Condition) were significant in any of the four analyses. Effects of Test Session indicated that there was no significant pre- and post-difference on comprehension, but both fifth and seventh graders read significantly more words per minute on the posttest than on the pretest. The fifth grade test forms and fictional selections were easier as indicated by mean comprehension scores of both grades and the types of comprehension items varied in difficulty.

Insert Table 3 about here

The two-way interaction between Condition and Test Session was significant for fifth graders on both comprehension and rate. Inspection of mean reading rates of fifth graders (Table 4) indicated that the expert's group rose from 180 on the pretest to 199 on the posttest, an increase of 19 words per minute (WPM). The rate of the teachers' group increased 76 words per minute from 181 to 257, and the control group decreased 10 words per minute from 202 to 192 across test forms of both difficulty levels.

Insert Table 4 about here

TABLE 3

Summary of Results of Repeated Measures Analyses of Variance

on Rate and Comprehension in the Instructional Phase

Source[a]	Grade 5				Grade 7			
	Comprehension		Rate		Comprehension		Rate	
	F	df	F	df	F	df	F	df
1. Posttest Form	NS		NS		NS		NS	
2. Sequence Group	NS		NS		NS		NS	
3. Condition	NS		NS		NS		NS	
4. Test Session	NS		18.776***	1,115	NS		50.257***	1,120
5. Difficulty Level	174.268***	1,115	NS		111.183***	1,120	NS	
6. Content	73.550***	1,115	NS		24.963***	1,120	8.733**	1,120
7. Item Type	121.303***	3,345	--	--	38.259***	3,360	--	--
8. Condition X Difficulty Level	NS		NS		5.424**	2,120	4.664*	2,120
9. Test Session X Content	NS		NS		15.535***	1,120	NS	
10. Difficulty Level X Content	14.476***	1,115	NS		7.448**	1,120	NS	
11. Condition X Test Session	5.619**	2,115	15.002***	2,115	NS		NS	
12. Sequence Group X Difficulty Level	4.361*	1,115	NS		NS		NS	
13. Condition X Item Type	2.430*	6,345	--	--	NS		--	--
14. Test Session X Item Type	2.961*	3,345	--	--	NS		--	--
15. Difficulty Level X Item Type	6.170***	3,345	--	--	NS		--	--
16. Posttest Form X Item Type	5.328**	3,345	--	--	NS		--	--
17. Sequence Group X Post-test Form	NS		4.177*	2,115	NS		3.771*	2,120
18. Condition X Sequence Group X Posttest Form	NS		NS		NS		2.749*	4,120

TABLE 3 (continued)

Source[a]	Grade 5				Grade 7			
	Comprehension		Rate		Comprehension		Rate	
	F	df	F	df	F	df	F	df
19. Condition X Difficulty Level X Sequence Group	NS		NS		3.115*	2,120	NS	
20. Condition X Sequence Group X Content	NS		NS		3.100*	2,120	NS	
21. Condition X Item Type X Posttest Form	NS		--	--	2.355***	12,360	--	--
22. Condition X Test Session X Difficulty Level	NS		4.515*	2,115	NS		NS	
23. Condition X Item Type X Content	NS		--	--	3.762**	6,360	--	--

[a]Two-way interactions are presented if significant in at least one analysis. Three-way interactions involving Condition are presented if significant in at least one analysis.

*$p < .05$

**$p < .01$

***$p < .001$

TABLE 4

Mean Fifth Grade Reading Scores in Condition by Test Session Interactions

Condition	Test session: Pretest	Test session: Posttest	Difference
I: Reading rate[a]			
Expert	180.04	199.42	19.38
Teacher	181.81	257.41	75.60
Control	202.32	191.94	-10.38
II: Comprehension[b, c]			
Expert	48.97	50.09	1.12
Teacher	53.15	47.72	-5.43
Control	52.55	56.31	3.76

[a] From Table 3, $F = 15.002$, 2/115 df, $p < .001$.

[b] From Table 3, $F = 5.619$, 2/115 df, $p < .01$.

[c] Expressed as percent correct.

The Condition X Test Session X Difficulty Level interaction was also significant on rate for fifth graders. On the more difficult seventh grade form, the teachers' group increased their rate by 90 words per minute, a mean increase of 28 words per minute over their gain on the easier fifth grade form. The control group, on the other hand, decreased 20 words per minute on the seventh grade form and one word per minute on the fifth grade form. The expert's group showed an approximately constant increase on both difficulty levels (about 19 words per minute).

The fifth graders' mean comprehension scores in the Condition X Test Session interaction were not in the anticipated direction: the expert's group increased one percentage point, the teachers' group desreased five points, and the control group increased four points (see Table 4). The gains in reading rate, then, were accompanied by a significant difference in comprehension among the three fifth grade groups. It should be noted, however, that the five point decrease in comprehension of the teachers' group is equivalent to fewer than two test items answered incorrectly.

Significant Condition X Test Session interactions were not obtained on either comprehension or rate of the seventh grade sample. In practical terms, the program after eight weeks did not influence comprehension at either grade level.

Discussion

Results of analyses of pre- and posttest scores indicated that the MER program was highly effective in improving the reading rate of fifth graders, providing support to that part of the hypothesis which predicted improved rate as a result of participation in the program. Reading rate of fifth grade students taught by both the expert and the teachers increased from pre- to posttesting. This increase in reading speed was especially dramatic for fifth graders in the teachers' group: their rate on the whole rose 40% above their pretest rate and even more markedly on the more difficult seventh grade selections. Although the expert's group showed a less striking increase in reading rate, their increase was considerably higher than that of the control group, and their comprehension remained constant from pre- to posttesting. Rapid reading skills would appear to be applicable to young readers, although the extent to which the young reader is a reliable decoder probably should be established prior to his inclusion in the program.

Commonly, the effects on comprehension are judged by increase in score. However, if comprehension scores are maintained (at a medium to high level), or suffer a slight decrement but reading rate increases markedly, the payoff from the program may still be viewed as substantial since the person can cover far more material.

In hindsight, then, the hypothesis that improved comprehension would accompany the increase in reading rate, may be an inadequate expectation regarding the effects of a rapid reading program. The effects of rapid reading on a student with a very slow reading rate but high understanding of what he reads should be different than for a student who reads slowly with little comprehension. In the former instance, the objective would be to maintain the comprehension level, perhaps even lose some, in return for the ability to cover more material in a given period of time.

It is likely that the impact of the new reading techniques is most quickly translated into increased rate. Four successive administrations of the tests at weekly intervals during the test development phase resulted in more rapid rates during each successive session without any teaching intervention (Corman, 1973). Changes in comprehension skills, however, require considerable time and effort by the students to consolidate the new and different methods of functioning. It is likely that changes in comprehension must be followed over a school year or more, with continued reminder drills and stress on using the newly acquired skills before comprehension levels will be affected to any degree. This longer term involvement is required before any definitive conclusions from this type of training can be made. To the investigators' knowledge no study reported in the literature has yet studied

these effects over the longer term to provide an adequate test of this portion of the hypothesis. Rather, the observation has commonly been that reading rates can be increased after a short term training program, with little lasting effects on reading rate or comprehension. Budoff (1973) has shown that some adolescents in special classes for the mentally retarded markedly improved their rate and comprehension when the program was maintained over two school years. Similar studies are required with intellectually normal children.

A puzzling finding was the general lack of success of the instructional program with seventh grade students. Neither the rate nor the comprehension of these students changed significantly after instruction. While the total sample of seventh graders (i.e., control and experimental groups) increased their reading rate significantly, it is likely that this increase was due to a practice effect. The fact that the seventh grade sample were poorer than average readers (their mean score on the Metropolitan Test was a grade level below the national average) may partially account for their failure to respond to the instructional program. It may be that this program, administered in class-size groups without a longer term involvement was most effective in facilitating the performance of students reading at grade level, rather than motivating older students who had experienced some degree of failure. It is likely that students with a prior history of failure most clearly

require the long term support of their teacher in order to achieve increased proficiency in comprehension.

In conclusion, while the More Effective Reading program did not appear to be beneficial in improving students' comprehension, a marked contribution of the program was demonstrated by the large gains in reading rate of the fifth graders from the beginning to the end of the program. This improvement was greater for students taught by their regular classroom teacher than for those taught by an expert in the method. It would seem likely that the ongoing relationship between students and their regular teacher, which permitted continuing support for the new skills, brought more favorable results than could be achieved by a specialist introduced for only eight weeks for short periods of time, despite his skills in the teaching techniques. The teachers who participated in the program did so voluntarily. Consequently, the teachers' motivation must be considered as a factor in the results they achieved. Since these teachers received no additional compensation, from the viewpoint of cost interested teachers can be quite effective with the on-the-job training and support provided by an expert instructor.

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Footnotes

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