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Elizabeth J. Short
Indianda University

E. Marcia Sheridan
Indianda University

Louise Anes
Indiana University

LEARNING TO READ BETTER: TRAINING DECODING, COMPREHENSION AND PERCEPTUAL SKILLS FOR POOR READERS

Elizabeth J. Short, Case Western Reserve Univ.
E. Marcia Sheridan, Indiana Univ./South Bend
Louise Anes, Brandywine Public Schools, Mich.

A host of causal agents have been suggested to account for the individual differences in reading performance that distinguish competent readers from disabled readers. Some important differences, too numerous to list in their entirety, have been observed between competent and disabled readers' knowledge and strategic use of word recognition skills, contextual cues, orthographic knowledge, and metacognitive knowledge. Despite the abundance of research implicating each of these domains as a source of the cause of reading failure, there exist results which strongly dispute each of these findings (see Singer, 1982). According to Singer, three problems have plagued reading disabilities research and appear to be responsible for the equivocal findings: the heterogeneity of disabled reading populations; the lack of task equivalence among studies and the abundance of specific good/poor reader differences that nevertheless fail to predict individual differences in reading ability. All three of these reasons for the equivocal findings suggest that the current approach to reading research must be altered.

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Despite the confusion and controversy surrounding the research in reading, useful information can be gained from research on competent and incompetent reading, providing educators carefully evaluate past research and decide which findings are meaningful. In a recent multicomponent model of reading ability (Carr. 1982), skillful performance in the following four groups of processes was assumed to be necessary for reading success: sight word recognition, decoding, syntactic and semantic context use, and comprehension. In addition Carr suggested that a fifth component--attention--apparently allocates processing capacity to each of the skills. The instructional implications offered by Carr's model (1982) are such that educators can clearly determine a reader's strengths and weaknesses within each domain, thereby capitalizing on strengths in an attempt to build weak areas.

The present study is a program evaluation designed to evaluate an elementary school remedial reading instructional program using Carr's model (1982) of reading ability. The "Learning to Read Better" program evolved from Anes' (1979a, 1979b, 1981) study and experience in teaching children with reading problems. The program is structured according to the components of the reading process, with time in the reading room and teaching responsibility allocated so that learning in each component occurs during every remedial session. Four key components of the reading process emphasized in this program are: visual-perceptual training, decoding, oral reading, and comprehension.

The important role attention or quality time on task plays in learning is incorporated into the methodology and classroom management techniques for each component. Reduction of information overload, repetition to mastery, immediate feedback, mutual feedback through questions and answers, and concurrent learning are all basic to the program. Children in this program receive highly structured training in all four components in addition to regular reading instruction. This program evaluation attempted not only to determine the effectiveness of a model Chapter One program for remediation of reading disabilities, but also to assess whether the achievement gains made by children participating in the "Learning to Read Better" program were better than the gains they would have otherwise made without remediation.

METHOD

Subject Selection

Longitudinal data were available for 126 children at Brandywine Elementary School for first through fifth grade. This study involved all children in the school, including those not requiring the program's assistance. Some children had incomplete data because they entered or left the school during data collection (n=23). In addition, some children graduated from the program during the five years (n=39) and therefore group membership (i.e., in vs. out of program) changed for each of the five years (see Table 1). In addition, six children were omitted from data analyses, five because of special education placement and one because of grade retention. Six percent of the participants were black, and less than one per cent of the children were Spanish surnamed.

Table 1 -Distribution of Children Participating in the Program

	Participating	
Year	Yes	No
1	29	52
2	26	62
3	12	83
4	14	86
5	13	95

Of the sample population thirty-two percent lived in their suburban, residential community less than five years. Fifty-six percent of the parents were currently married, eleven percent had experienced some form of college education, and thirteen percent were pursuing professional careers. By and large, the children in this population would be characterized as coming from white, lower to middle socioeconomic class home.

Children were selected for participation in the Learning to Read Better Program on the basis of classroom teacher's recommendations, scores below the fiftieth percentile on

the reading subtest of the Stanford Achievement Test (1973), and an individually administered word recognition test specifically developed for the program (Anes, 1981). Children generally remained in the program until they achieved above the fiftieth percentile on the standardized reading test, usually from one to two years. In addition, children could have been reaccepted into the program at a later time if their reading score fell below the 50%ile.

Treatment Program

Once accepted ir to the Learning to Read Better program, children were assigned to small groups (approximately 4-8 children) according to their ability and special needs. Children accepted for the special reading program also participated in reading instruction with their classroom teacher. The supplementary reading program provided additional instruction one hour a day, four days a week.

The four key components of instruction were visual-perceptual training, decoding instruction, oral reading, and reading comprehension. Daily work was provided in all four areas. Two groups of children were in the reading room at the same time. While one group was working with the reading teacher on reading and comprehension exercises (approximately 22 minutes) and visual tracking skills (about 8 minutes), a teacher's aide trained in phonics and structural analysis skills involved the second group in decoding activities (30 minutes). At the end of each 30 minute period, the two groups switched and worked on the other component(s) of the program. Each component of training merited separate consideration.

Visual-Perceptual Training The materials used in the visual training exercises were a series of workbooks that required children to visually track symbols, letters and thought (i.e., simple phrases, sequential phrases, simple sentences, and questions and answers) throughout the task materials (Wehrli, 1976). These visual tracking exercises were assumed to provide practice in auditory and visual memory, spelling and sentence structure, as well as in directionality and discrimination training (Anes, 1981).

Decoding Training The decoding phase of the training program relied heavily on phonic skills and directionality training to enable children to break the language/symbol

code. However, except for initial consonant sounds and digraphs, no phonic sounds or rules were taught in isolation. To accomplish mastery of the code, word cards were used. Word cards were similar to flashcards, but their use differed in the teaching method employed (Anes, 1979a).

Oral Reading and Comprehension Training Children practiced reading and comprehending material below their decoding ability (Anes, 1979b) in order to maximize the opportunity for correct feedback and minimize interference in comprehension caused by an inabiliby to decode. Instruction in oral reading occurred in a group situation because it allowed children increased opportunity to listen to formal language. If children misread a phrase or sentence so that it had no menaing, the teacher always asked, "Does that make sense?" Children were taught to use context and the meaning of language to compensate for their mistakes. Skills such as following directions, getting main ideas, and drawing conclusions were also stressed.

Unlike oral reading, all comprehension materials were individually leveled and paced. The physical arrangement of the reading room allowed and encouraged children with any problem to approach the teacher's desk and receive immediate assistance. Specific diagnosis of and teaching for a problem always occurred during comprehension sessions and comprised individual mini-lessons.

Criterion Variables

Stanford Achievement Tests were administered during the fall and spring of each year to all children in school (Madden, et al., 1972). When out-of-level testing was necessary, scores were converted using in-level norms. The comprehension subtest scores were available for children from first grade through fifth grade and served as the criterion variables in this study. Covariates employed in this study were 5th grade IQ from the Otis-Lennon Mental Ability Test (1967) and socioeconomic status.

Results

In an attempt to best answer whether the reading program facilitated competent reading performance, three different approaches to data analysis were employed. First, for each of the five years during which children participated

in the reading program, a 2 (Group, i.e., program vs. no program) by 2 (sex) by 2 (Time) repeated measures analysis of covariance was performed on the reading achievement percentile scores, using socioeconomic status and fifth grade IQ as covariates. A multivariate approach to repeated measures was used (McCall and Applebaum, 1975). With the exception of year 4, all other analyses revealed a similar pattern of findings (see Table 2). First, the expected main effect for group was obtained, indicating superior reading performance by children not requiring the program's services (all p's < .001). Second, a significant group by time interaction was obtained, suggesting that those children participating in the program improved more from fall to spring in reading achievement than those children not participating in the reading program (all p's ® .01). These analyses, then, addressed the question of whether those children in the program showed greater growth in achievement than those children out of the program in any given year; the answer to the question is apparently yes.

Table 2--Achievement Growth as a Function of Program Participation

		Participating		Not Participating		
Year	Time	M	SD	M	SD	F (df)[a]
1	Fall	30.72	20.47	70.33	26.00	15.76 (1,75)**
	Spring	65.48	18.00	81.80	14.75	
2	Fall	45.39	18.70	74.79	18.71	10.29 (1,82)**
	Spring	61.23	15.93	76.92	19.93	
3	Fall	32.83	12.66	69.02	18.62	7.81 (1,88)**
	Spring	46.50	17.54	70.01	19.82	
4.	Fall	32.86	11.22	66.09	17.38	.71 (1,94)
	Spring	40.93	19.51	72.58	20.10	
5	Fall	20.85	8.12	64.70	22.22	13.35 (1,102)*
	Spring	39.31	16.21	66.75	21.07	

** p < .01 *** p < .001

[a]F value for group x time interaction

Table 3--Discrepancy Between Obtained and Expected Achievement Scores

Year	Expected Score	Obtained Score	t (df)
1	35.68	65.48	9.19 (28)***
2	35.45.	61.23	8.67 (25)***
3	20.97	46.50	4.96 (11)***
4	28.80	40.93	3.28 (13)**
5	7.63	39.31	7.12 (12)***

** $p < .01$ *** $p < .001$

Both of the previous sets of analyses, however, are complicated by the fact that they contrasted children out of the program with children in the program. The third set of analyses, therefore, involved only those children who had been both in and out of the program, and compared their average change in achievement while in the program to their average change while out of the program. A 2 (sex) by 2 (participation, i.e., in vs. out) repeated measures analysis of variance revealed a mean effect for participation, $F(1,37) = 42.90$, $p < .001$. For those children who were both in and out of the program, average change between fall and spring achievement was superior while participating in the program.

Discussion

In general, these findings support the ability of the Learning to Read Better program to help poor readears improve their reading skills. Greater growth in reading was obtained for children participating in the Learning to Read Better program as compared to children not participating in the program. In addition, program participants' obtained reading achievement scores were vastly superior to their expected scores for any of the five years. And finally, these results clearly indicated that the average change in achievement from fall to spring while participating in the program was superior to the average change

in achievement while not participating. These findings are strengthened by the fact that reading performance was improved on a standardized measure of reading achievement; therefore, the program apparently developed not only unitary skills, which are situation and/or task specific, but also global processes, which are generalizable. Thus, the combination of four key ingredients--visual-perceptual skills, decoding, oral reading, and comprehension--appears to be a useful and effective multicomponent treatment approach to reading deficits.

Like the Carr model (1982) of reading ability, the Learning to Read Better program shows promise in that it demystifies reading ability for educators. Adopting a multicomponent treatment approach that acknowledges the importance of a variety of skills and learner characteristics offers promise for generalizable reading skills (Brown and Campione, 1980).

Despite the strength of these findings, the quasi-experimental, post-hoc nature of the design somewhat limits as comprehensive an evaluation of the program as would be desired. Cook and Campbell (1979) address common problems that plague quasi-experimental designs, such as program evaluations. But, the common problems faced in program evaluations should not negate the merits of the present study, as three appropriate sets of analyses apparently arrive at the same conclusion--the Learning to Read Better program does enable children to become better readers.

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