

The Association Between a Home Reading Program and Young Children's Early Reading Skill

Abstract: The purpose of this study was to examine the effects of teaching parents to deliver a carefully sequenced reading program to their kindergarten children who were not receiving formal reading instruction in school. Forty-five children and their parents enrolled in a kindergarten in a university-sponsored primary school participated in the research. Approximately twice as many children who participated in the home reading program scored in the top quartile of the Woodcock Reading Mastery (WRMT-R) word identification and word attack subtests as might be expected based on the test norms, while the children in the control group approximated the expected norms. On curriculum-based measures, the average score of children in the home reading group was higher than 87% of the children in the control group. Finally, a multiple regression analysis revealed that a significant proportion of the variance in children's posttest performance was associated with their pretest scores on the WRMT-R letter identification subtest scores, their knowledge of the phonemes introduced in the curriculum and the consistency with which their parents implemented the home reading program. The results are discussed relative to previous

research in which teachers implemented the curriculum and the issues associated with utilizing parents as primary beginning reading teachers. In addition, limitations of this research and suggestions for future research are provided.

Skill

Parents' expectations and active parent involvement are key elements in children's development and education (Chavkin & Williams, 1989; Coates & McLaughlin, 1992; Epstein, 1990; Sutherland, 1991). In reviews of parent-school partnerships, Epstein (1990) and Sutherland (1991) characterized several types of parent involvement that should be part of school programs. These include promoting positive home conditions or completing specific tasks at home to support school learning, informing parents about children's school progress, opening schools to parent volunteers, responding positively to parent and child-initiated requests for help, and parent involvement in school governance. Interestingly, none of the descriptions of parent involvement include parents as primary instructors while teachers provide a monitoring and supportive function.

A critical area for parent involvement is in the development of their child's early reading skills. Generally, strong home literacy environments

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are positively associated with children's early reading development (Chall, Jacobs, & Baldwin, 1990). Typically, these homes have books readily available and parents read to their children or listen to their children read. Moreover, the parents are involved in their children's schools and have constructive relations with their children's teachers (Chall et al., 1990; Epstein, 1990; Reynolds, Weissberg, & Kaspro, 1992). While many teachers support and include programs in their classrooms that promote parents reading with children, teachers have indicated that they are reluctant to allow children to take classroom reading material home and that they lack the time needed to provide parents with well-developed instructional materials, or adequate training in how to teach (Cuckle, 1996; Epstein & Becker, 1982; Hannon & Cuckle, 1984). In a survey of 20 teachers in 16 infant and primary schools in the United Kingdom, Hannon and Cuckle (1984) reported that only 12 teachers sent readers home with children. Of those teachers, five offered no instructional guidance to the parents, four offered guidance through informal discussions if the children were having difficulty, and only three teachers offered informal instructional guidance to all the parents. In a recent study of parent involvement with their children's reading, Cuckle (1996) indicated that the parents reported that teachers did not provide explicit strategies for home reading. Moreover, 8 of 11 parents expressed doubts about whether the reading instruction they provided was implemented correctly and were concerned that they did not teach in the same way as the teachers. Interestingly, 10 of 11 parents in Cuckle's (1996) study indicated that they would like to learn more about helping their child systematically improve their reading skills.

A variety of parent involvement reading models are described in the research literature. These include paired reading (Toomey, 1993; Topping & Lindsay, 1992; Topping & Whiteley, 1990), shared reading (Topping, 1986), parent listening (Hannon, 1987; Leach & Siddall, 1990;

Thurston & Dasta, 1990; Tizard, Schofield & Hewison, 1982; Toomey, 1993), pause, prompt, praise (Glynn & McNaughton, 1985; Henderson & Glynn, 1986; Leach & Siddall, 1990; Love & VanBiervliet, 1984; Scott & Ballard, 1983) and direct teaching or a behavioral approach (Ebey, Marchand-Martella, Martella, & Nelson, 1999; Leach & Siddall, 1990; Toomey, 1993). Most of the parent involvement reading studies report improvements in children's reading accuracy, comprehension, or spelling. However, these studies occurred concurrently with ongoing reading instruction in the children's classrooms. Thus, it is not clear if the parent program would be successful without the support offered by the daily reading program in the classroom. In one study, Leach and Siddall (1990) examined the effects of four parent reading models (paired reading; hearing children read; pause, prompt, praise; and direct instruction) on children's reading accuracy and comprehension. The children from two grade 1 primary classrooms in Australia were randomly assigned to one of the four reading approaches for 10 weeks. All children continued to receive reading instruction in school. Parents in the hearing reading group were provided suggestions for helping with reading at home and the parents in the other groups were provided from 1.5 hours (i.e., paired reading and pause, prompt, praise) to 4.5 hours (i.e., direct instruction) of instruction. On the reading accuracy measure, the groups showed substantial mean gains that ranged from 5.9 months (hearing reading) to 16.8 months (direct instruction). Posttest comparisons among the groups revealed standardized mean difference effect sizes that ranged from 0.97 (direct instruction vs. paired reading) to 2.7 (direct instruction vs. hearing reading) in favor of children in the direct instruction group. One potential confound in this study is the classroom program. If the classroom reading program was an explicit phonics program that directly complemented the program used by the parents in the direct instruction group then some portion of the effect

might be related to the complementary interaction between school reading instruction and home reading instruction.

In several other studies (Duvall, Delquadri, Elliot & Hall, 1992; Foxx & Foxx, 1986; Henderson & Glynn, 1986; Koven & LeBow, 1973; Love & VanBiervliet, 1984; Ryback & Staats, 1970; Scott & Ballard, 1988; Thurston & Dasta, 1990; Wilks & Clarke, 1988) parents provided remedial reading instruction for children between the ages of 7 and 12. Parents were taught to use specific procedures for correcting children's errors, how to praise children to encourage reading and how to distribute comprehension questions throughout reading. While the participating children showed increases in the targeted reading skills, it is important to note that the parent training time in these studies ranged from several hours to several weeks. In one study, Gang and Poche (1982) taught three mothers how to teach a range of skills to remediate reading deficits with three 8- to 9-year-old boys. Parents taught their children sound-symbol associations, blending skills and implemented a token reinforcement system. The parent tutoring program was highly effective, but parent training required a total of five hours of initial group instruction followed by four 30-minute individual home visits.

Parents have been asked to read with their children to support ongoing reading instruction in school and have been taught how to provide remedial instruction when their children are experiencing reading difficulties. However, none of the parent involvement reading research examined teaching parents how to provide systematic beginning reading instruction in the home while supporting that instruction in school through performance monitoring and instructional assistance for parents. The purpose of this study was to examine the relationship between a carefully sequenced reading program delivered by parents to their kindergarten children who

were not receiving formal reading instruction in school, and the children's reading performance.

Method

Participants

Parents and their kindergarten children from a university-sponsored elementary school participated in the home reading program for four months. With the support of the kindergarten teacher, parents in the morning kindergarten were asked by letter if they would like to attend a two-hour workshop to teach them how to teach their children beginning reading skills. Parents of 22 of the 23 children in the morning kindergarten indicated interest in the workshop. Two of the participating parents spoke English as a second language.

Children in the afternoon kindergarten class ($n = 23$) served as the control group. All children were between 5 and 6 years old and none had identified learning difficulties.

Family characteristics. Demographic information on the participating parents is provided in Table 1. As a group, the participating parents were highly educated middle income families. Over 90% of the fathers and 34% of the mothers worked full-time outside the home. All the parents indicated that they read books with their children and only two parents indicated that they read with their child less than twice per week.

Both kindergarten classes were taught by the same teacher who primarily focused on language experience activities and provided a rich array of literacy experiences. Letter sounds and names were addressed through songs, coloring letters and other art activities, or through stories that the teacher read aloud to the children. On a weekly or biweekly schedule the group would tell a story and the teacher would write the story on a large easel for the children to access

Table 1*Education and Income
levels for Participating Families*

	Control Group (18 of 23 participants responded)	Home Reading Group
Children	2.78 (range-1-6)	2.48 (range-1-5)
Father Education		
Secondary School	6%	9.5%
HND or Bachelors Degree	29%	28.5%
Grad Degrees	65%	62%
Mother Education		
Secondary School	11.1%	9.5%
HND or Bachelors Degree	72.2%	43%
Grad Degrees	16.7%	47.5%
Income		
Below \$20, 000	5.5%	
21-29,000	16.6%	9.5%
30-45,000	16.6%	28.6%
50,000 +	61.1%	61.9%

during free time. There was no systematic reading instruction that occurred on a daily basis.

Reading Materials

Each parent-child pair was given reading material from the *Reading For All Learners* (Hofmeister, Findlay, & Willis, 1996) beginning reading series. The original program was developed by Southwest Regional Laboratory for Educational Research and Development and marketed as the SWRL/Ginn Beginning Reading Program

(BRP) (Hanson & Schutz, 1975, 1976). BRP included 52 "little books" that progressed from kindergarten through a readability level of 1 year 6 months. The BRP was developed and extensively field-tested by the Southwest Regional Laboratory for more than 15 years (Hanson & Farrell, 1995; Hanson & Schutz, 1975, 1976). In the 1970s the program was field-tested with kindergartens representing about 20% of the U.S. kindergarten population (Hanson & Schutz, 1975). The field tests included children from all backgrounds and school contexts. In sum, the field tests demonstrated that consistent implementation of the BRP for 20 to 30 minutes daily in a standard kindergarten environment would produce proficient beginning readers.

In 1993, Hofmeister modified the public domain version of the BRP curriculum for use by paraprofessionals working with children at-risk, or those receiving special education services. While preserving the original stories, the "little books" recommendations described in a recent synthesis of research on reading from the National Institutes of Child Health and Human Development (Grossen, 1997) were integrated into the reading curriculum as well as changes to make program implementation easier for paraprofessionals. The program modifications included: (a) editing text and graphics to improve alignment and story flow; (b) changing the story sequence to modify when some phonemes and words were introduced and to maintain less than a two-month change in readability between successive books; (c) adding a sound practice section at the beginning of each book and editing the word practice section to include review words as well as new words; (d) adding a phoneme and word preview section at the end of each book and a review section at the end of every fifth book; and (e) editing the story questions and placing them in small type on the story page when they should be asked rather than at the end of the story.

The revised 52 books were divided into two sets of 26 books. The sets were then divided into packets of five or six books for the children to take home.

Dependent Variables and Measures

The dependent measures for this study focused specifically on the relationship between parent reading instruction and children's development of word recognition and decoding skills with an emphasis on developing letter-sound associations and blending skills. These skills were assessed with the Woodcock Reading Mastery Tests-Revised (1987) subtests on letter identification, visual auditory learning, word attack and word identification. In addition, children were assessed on several curriculum-based measures.

Woodcock Reading Mastery Tests-Revised (WRMT-R).

The WRMT-R is a standardized achievement test that permits in-depth analysis of reading achievement. In this study, the children were given two reading readiness subtests, letter identification and visual-auditory learning and two reading achievement subtests, word identification and word attack. The reading readiness measures were administered prior to beginning the home reading program and the reading achievement measures were administered at the end of the four-month program.

Curriculum-based measures. Children were assessed individually on three curriculum-based measures to monitor their progress through the *Reading For All Learners* curriculum (Hofmeister et al., 1996). First, children were tested on the 18 phonemes introduced in the first set of books. The tester showed the child the letter "z" and said, "Listen to me say the sound of this letter." The tester then modeled the sound and asked the child to repeat the sound with the cue, "What sound?" Correct responses were praised and incorrect responses were followed by a repetition of the model-cue sequence. After the child

said the /z/ phoneme correctly the 18 phonemes in the first set of books were tested by presenting the letter and asking the child, "What sound?" If the child stated the letter name, the tester repeated a request for the sound. If the child responded incorrectly or repeated the letter name, the next phoneme was presented. Thus, the number of correctly produced phonemes served as the dependent measure.

Second, word tests were designed for each set of books. The set 1 word test sampled 51 words (94% of the words introduced in the set 1 books) and the set 2 word test sampled 52 words (63% of words introduced in the set 2 books). For each set, test words were sampled across the five packets. In set 1, from 9 to 12 new words were sampled from each packet; in set 2, from 8 to 11 new words were sampled from each packet. Thus, each test sampled between 38% and 100% of the new words in a packet of reading books. The pool of words for each set was organized into sentences that ranged from two to seven words. During testing, the children were asked to read each sentence. The children were given no feedback on their decoding skill, but were encouraged to try their best and were praised for working hard. Percentage scores were calculated for the total set of sampled words and for each packet within set 1 or set 2. Children met criterion on a packet when they scored higher than 80% on the word test for that packet.

The third curriculum-based measure was how long a child kept a packet of books before exchanging it for a new packet. This measure was used to estimate the consistency with which parents implemented the reading program. For each child, research assistants recorded the date that a packet of books was taken home and the date that the packet was returned. At the end of the study, the number of days per packet was calculated for each child.

Procedures

The home reading program included four phases: pretesting, parent training, program implementation, and posttesting.

Pretesting. During the pretesting phase children in the morning and afternoon kindergarten were tested on the 18 phonemes in the first set of books, the set 1 word test and the reading readiness subtests of the WRMT-R. The phoneme test and the reading readiness subtests were administered to the children once, while the set 1 word test was administered twice. Following the set 1 word pretest,

children were placed in the first reading packet in which their mean packet score was less than 80%.

Parent Training. The parent training session was scheduled during an evening when most parents were available. Parents of three children were not available and were trained to use the program during an individually scheduled training session. When parents arrived for the two-hour training session, they were provided a 10-page parent guide that outlined the reading procedures the parents should use with their children. These included arranging the environment; teaching letter-sound correspondence; blending sounds without stopping between the sounds; a model, lead, test error correction strategy; and criterion for moving the child to the next book in the series. In addition, the parents were given a small chart the children could complete to track their own progress through the reading series.

After welcoming the parents to the workshop and a brief introduction about the reading series, the procedures were modeled by the workshop presenters and briefly practiced by the parents. The instructional procedures (e.g., teaching letter-sound correspondence, blending sounds and error correction) were presented in the parent guide and during the parent workshop as explicit instructional frames.

Procedurally the parents were taught to use a model-test strategy for introducing new letter-sounds and blending the sounds of new words and a model-lead-test strategy for correcting child mistakes. Table 2 depicts the instructional frames used to teach new letter-sound correspondences and to correct children's letter-sound correspondence errors.

Program implementation. The day after the parent training session, the morning kindergarten children were given a packet of books based on their pretest scores. When the children returned their packet, they were

Table 2

Instructional Frames to Teach Letter-Sound Correspondence and Correct Child Mistakes

New Sounds

Steps	Example
Say the sound.	"Aaaaaa."
Ask your child to say the sound.	"What sound?"
Child says the sound.	"Aaaaa."

Correcting Mistakes

Sounds

Steps	Example
Say the sound.	"That sound is 'aaaaaa'."
Say the sound together.	"Let's say the sound together. 'Aaaaaa'."
Ask the child to say the sound.	"Say the sound alone."
Child says the sound alone.	"Aaaaaa."

given the set 1 or set 2 word test. Each time a child in the home reading group was administered a set 1 or set 2 word test, a child in the control group was selected randomly and given the same word test. Thus, children in the control group were tested as frequently as children in the home reading group. The children's scores and the packet return date were recorded after each test administration. If children scored below 80% on two consecutive packets, or did not return a book packet within 14 days, the child's performance was discussed with the parents and a home observation of a reading session was conducted with the parents' consent. Conversations with parents following low test performance occurred with four children and two of these were followed by a home observation. During the home observation, parents were provided feedback on their implementation of the instructional procedures described in the parent guide and suggestions for motivating and engaging the children in the reading program. For one child, it became clear that a sibling rather than the parent was reading with the child each day. The sibling was then taught how to conduct the reading sessions and given flash cards with the sounds the child needed to review.

Ten of the parents were also telephoned (range = 1–3 phone calls) when children did not return a book packet within 14 days. During those conversations, parents were asked how the reading program was progressing and specifically how their child was progressing through the packet of books they had at home. Parents were never told that they were holding a packet for a long time or that they needed to return their packet of books. Most often parents answered the interviewer's questions by describing management or implementation problems that led to a slow packet return. When parents requested solutions to these problems, the interviewer provided suggestions for solving these problems. For four families home observations were conducted following a

conversation about a slow packet return. During those visits parents were given feedback on instructional procedures, suggestions for maintaining the child's interest in reading and how the parents might restructure their reading time.

Following two of the six home visits children were asked to repeat a packet of books. When the children returned the books a second time, the packet scores for the retest were not recorded as part of the database.

Linking the home reading program to school activities was accomplished in three ways. First, parents were asked to complete a comment sheet about each packet the child completed. The comment sheet requested information about sounds and words that the child was having difficulty with, the number of times the child read each book, if the child was having difficulty with comprehension questions, and other general suggestions or comments from the parent. Second, parents received a monthly letter from the program staff describing the progress of the group in general, suggesting solutions for common problems and encouraging parents to continue with the reading program. Third, a 5 to 10-minute daily group session was held at school with the experimental children to exchange book packets. The children were divided into three groups and the children chose a name for their group. Prior to the group session, the instructors mingled with the children in the classroom for several minutes and then called the groups together by name. When a child returned a packet of books, the group gave the child a "round of applause" and after the group session the child was permitted to choose a small toy or prize from a "Treasure Basket" to celebrate the reading accomplishment. In addition, a short activity was completed to promote excitement for the home reading program. The activities included asking children to share a favorite story from the

series, coloring a story character, making paper bag puppets of story characters or acting out a particular story. At the end of each group session the children were taught a reading cheer. The instructor asked the children, "What are you going to tell your parents to do with you tonight?" and the children yelled, "Let's do reading time!"

Posttest. At the end of the school year the children in the morning and afternoon kindergarten were tested on the word identification and the word attack subtests of the WRMT-R.

Interobserver Agreement

Interobserver agreement data were collected on the curriculum-based word test and phoneme pretest. For the home reading group, interobserver agreement data were collected on the word test on 15% of the test administrations and on 20% of the phoneme test administrations across children. For the control group, interobserver agreement data were collected on 13% of the set 1 word pretest and the phoneme test administrations. The tester and an independent observer (both of whom were graduate students in education) recorded the child's responses during the test session. The independent observer's data sheet was compared with the tester's data sheet. A point-by-point interobserver agreement index was calculated by dividing the observer's and tester's scoring agreement by the agreements plus disagreements and multiplying the total by 100.

For the home reading group, the mean interobserver agreement for the word test was 98.7% (range = 94–100%) and for the phoneme test the interobserver agreement was 93% (range = 78–100%). For the control group, the mean interobserver agreement for the word test was 99.6% (range = 98–100%) and for the phoneme test the mean interobserver agreement was 93.5% (range = 89–100%).

Results

Data Analysis

Pretest and posttest data were analyzed descriptively. Standardized mean difference effect sizes were calculated to describe the magnitude of the effect of the reading program relative to the control group for each dependent variable (Glass & Hopkins, 1996). In the pretest analysis the sample standard deviation was used to calculate standardized mean difference effect sizes and in the posttest analysis the control group standard deviation was used to calculate standardized mean difference effect sizes. There are few guidelines available for determining when an effect size is educationally significant. Cohen (1988) suggested that 0.20 is a small effect, 0.50 is a medium effect and 0.80 is a large effect. Further, the WRMT-R data were analyzed using a multiple regression analysis to determine what pretest and implementation variables might predict outcomes of the parent administered reading program. SPSS 6.1 (1995) was used to obtain the results of these analyses.

Descriptive Analysis of pretest and posttest Data

A summary of the children's pretest scores on the WRMT-R letter identification and visual-auditory learning subtests and on the curriculum based measures is provided in Table 3. The WRMT-R was administered to each child prior to beginning the home reading program. There was little difference between the home reading and control group children's mean standard score on either test as indicated by the standardized mean difference effect sizes. On the word test for set 1, the children's mean score for the two pretest administrations was used in the analysis. Similar to children's scores on the WRMT-R pretests, there was little difference on the phoneme test or on the set 1 word test for the children in the morning and the afternoon kindergarten class. These data indicate

that the children in the two classes entered the study at similar levels of reading readiness and with similar reading skills relative to the home reading program.

Based on the set 1 word test, 17 children in the home reading group were placed in the first packet of the *Reading For All Learners* curriculum, three children were placed in the second packet and one child scored 100% on the pretest and was placed in an advanced section

of the curriculum. In addition, one child's parents decided not to participate in the program after the child completed two packets. The data from the child placed in an advanced section of the curriculum and the data from the child whose parents decided not to participate in the program were not included in the pretest or posttest analysis. Had the control children participated in the home reading program, 19 would have been placed in the first packet of books, two children would have been placed in

Table 3
Pretest and Posttest Scores for Participating Children

Measure	Pretest Scores			Posttest Scores		
	Control Group (N = 23)	Home Reading Group (N = 20)	Effect Size	Control Group (N = 23)	Home Reading Group (N = 20)	Effect Size
WRMT-R: Mean standard score (standard deviation)						
Letter identification	100.8 (16.0)	97.5 (18.7)	-0.19			
Visual-auditory learning	102.1 (13.8)	102.9 (11.2)	0.06			
Word Identification				99.9 (17.5)	104.1 (11.3)	0.24
Word Attack				92.9 (20.3)	103.2 (17.9)	0.51
Curriculum-based Measures						
Phonemes in set 1 (18)	5.1 (4.7)	5.2 (5.8)	0.00			
Words in set 1 (51)	*9.5 (13.3)	*9.7 (11.7)	0.01	14.09 (16.0)	40.8 (10.0)	1.66
Words in packets completed				26.1% (31.1)	80.7% (15.9)	1.76

*Mean score across 2 test administrations

packet 2 and two children would have been placed in set 1 packet 4.

A summary of children's posttest scores on the WRMT-R word identification and word attack subtests, the set 1 word test, and words assessed in the packets completed by each child are provided in Table 3. The WRMT-R word identification and word attack subtests were administered to each child at the end of the 4-month program. On the word identification subtest the average score of children in the home reading group was equal to or greater than approximately 60% of the children in the control group ($ES = 0.24$); on the word attack subtest, the average score of the children in the home reading group was equal to or greater than approximately 70% of the children in the control group ($ES = 0.51$). An analysis of children who scored above the 75th percentile revealed that, on the word identification subtest, 40% of the children in the home reading group and 17% of the children in the control group scored in the upper quartile. On the word attack subtest 50% of the children in the home reading program and 26% of the control children scored above the 75th percentile. The children in the control group approximated the expected WRMT subtest norms. In contrast, almost twice as many children in the home reading program as might be expected based on the WRMT subtest norms scored in the top quartile.

Children in the home reading group completed a packet and were then tested an average of 6.8 times (range = 3–10) and, correspondingly, children in the control group were tested an average of 5.65 times during the four-month program. Each child in the home reading group read a mean of 35 "little" books during the four-month program. On average, these children exchanged packets every 19.08 days; however, the number of days varied greatly across children (range = 5.70–38.67 days). On the set 1 word test, the children who participated in the home reading program performed substantially

higher on the set 1 posttest than the control group children. The effect of the reading program was even larger when children's word test scores are calculated only on the reading packets completed by each child (see Table 3). The average score of children in the home reading group, at the last test administration, was higher than 87% of the children in the control group ($ES = 1.76$).

A visual analysis of the effect on children's recognition of the words introduced in packets 1 through 5 (set 1) with those who began with packet 1 is provided in Figure 1. It is clear from this analysis that after reading a packet of books the children successfully read the word samples from that packet. Interestingly, for children in the home reading group a slight upward trend is evident at the test point immediately prior to reading a packet. This suggests that children may have been beginning to generalize their word attack skills to words they were not exposed to previously. Moreover, this analysis suggests that the results were not a function of repeated exposure to the same test when the children completed a packet of books.

Performance Predictors for the WRMT-R Word Identification and Word Attack Subtests

To determine what variables might be associated with children's outcome scores, multiple regression analyses were conducted using the word identification subtest, word attack subtest and children's performance through the last packet completed as dependent variables. The pretest variables used as predictors in the regression analyses included the WRMT-R letter identification and visual auditory learning subtests, the curriculum-based phoneme pretest, the set 1 word pretest, and home reading or control group affiliation. The SPSS 6.1 (1995) default criteria of $p < 0.05$ was required for a variable to enter the stepwise multiple regression equation. For each multiple regression analysis, dependent

Figure 1

Recognition of words introduced in the set 1 reading packets for children who were initially placed in packet 1 in the Reading for All Learners curriculum

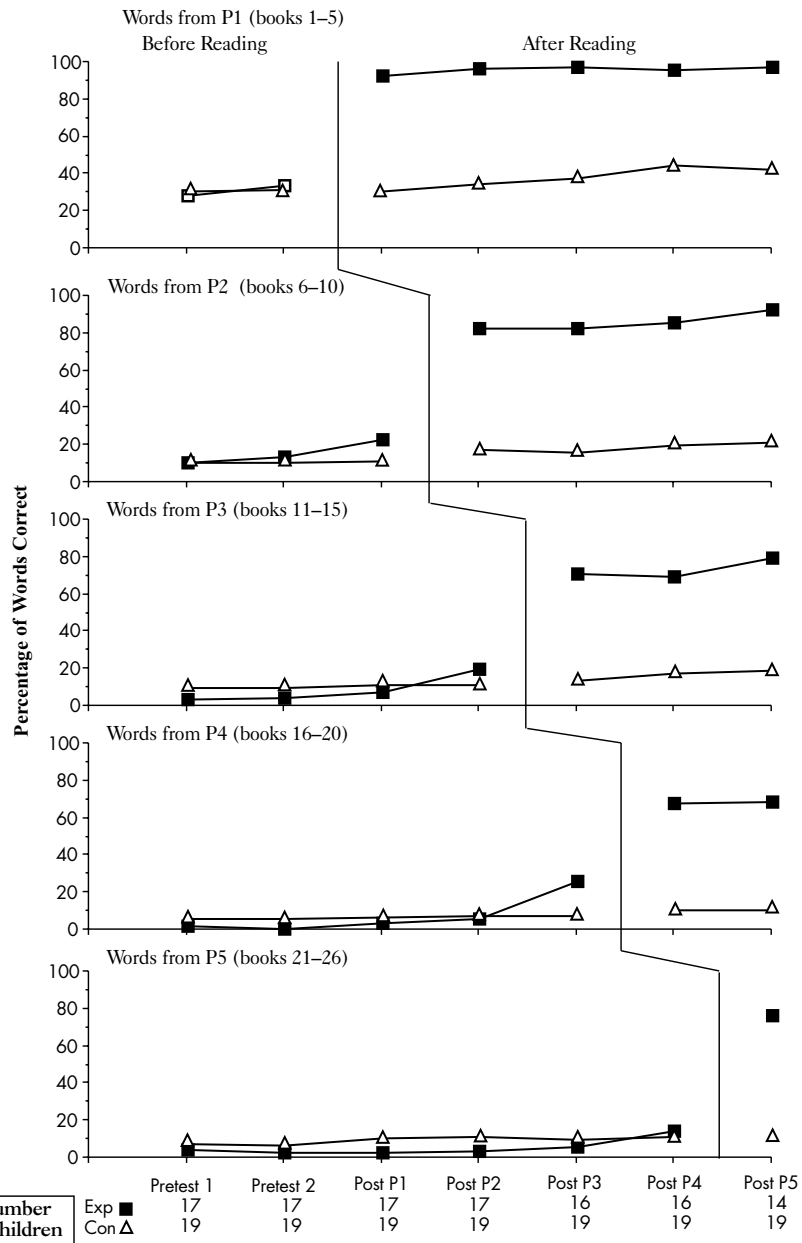


Table 4*Multiple Regression Analysis for WRMT-R Word Identification and Word Attack Subtests and Words in Packets Completed*

Dependent Variable ($N = 43$)	Predictor Variables	*Step	R^2 (Adj. R^2)
WRMT-R Word Identification	Letter Identification		
	Visual-Auditory Learning	2	0.53 (0.50)
	Phonemes in set 1	1	0.45 (0.44)
	Words in set 1		
	Group Affiliation		
WRMT-R Word Attack	Letter Identification	3	0.51 (0.48)
	Visual-Auditory Learning		
	Phonemes in set 1		
	Words in set 1	1	0.39 (0.38)
	Group Affiliation	2	0.46 (0.43)
Correct Words in Packets Completed	Letter Identification		
	Visual-Auditory Learning	3	0.84 (0.83)
	Phonemes in set 1		
	Words in set 1	2	0.80 (0.79)
	Group Affiliation	1	0.55 (0.54)

* $p < 0.05$ for entry into the regression equation

variables, predictor variables, the step at which a variable entered the multiple regression equation and the correlation coefficient squared is presented in Table 4.

As noted in Table 4 children's performance on the phoneme in set 1 pretest accounted for 45% ($r^2 = 0.45$) of the variance in children's WRMT-R word identification subtest score. An additional 8% of the variance in predicting children's score was accounted for by the visual auditory learning subtest. On the word attack subtest 39% of the variance was associated with pretest

scores on the words in set 1. An additional 12% of the variance in children's word attack scores was associated with children's group affiliation (control group or home reading group), their scores on the letter identification subtest. In sum, whether the children participated in the home reading curriculum was associated with a significant proportion of the variance in children's word attack scores, but was not associated with a significant proportion of the variance in predicting children's word identification scores. The word recognition and phoneme knowledge that the children entered the study

with was associated with over 45% of the variance in predicting their scores on the WRMT-R word identification or word attack subtests administered at the end of the school year.

In contrast, when the children's word test score on packets completed was used as the dependent variable, children's participation in the home reading program was associated with more than 50% ($r^2 = 0.55$) of the variance in children's scores, while an additional 30% of the variance needed to predict children's curriculum-based outcome scores was associated with children's pretest score on the words in set 1 and the WRMT-R visual-auditory learning subtest.

Performance Predictors for the Correct Words in Packets Completed for the Home Reading Children

A final multiple regression analysis was conducted with the experimental group to determine what pretest variables might be associated with children's performance in the home reading curriculum and to determine what additional variance might be associated with the consistency with which parents implemented the home reading program (see Table 5). In this analysis the average number of days between packet exchanges was associated with 39% of the variance in children's word test score through their last packet. This suggests that children from families who implemented the curriculum regularly and exchanged packets in a timely manner had higher outcome scores than children from families who did not implement the program regularly. The children's scores on the pretest variables were then parceled out first, in a stepwise multiple regression equation, and then the average number of days in which children exchanged packets was added to the equation to determine how much additional variance might be associated with the consistency of program implementation after the variance from the pretest variables is removed. When children's scores on the pretest variables are parceled out,

the letter identification subtest scores account for 31% of the variance on children's word test score through their last reading packet. An additional 21% of the variance in children's score on the words in the packets completed is associated with the average number of days between children's packet exchanges. Thus, at a minimum, for this group of children, approximately 20% of the variance in their curriculum-based outcome score is associated with the consistency with which their parents implemented the home reading program.

The relationship between children's score following each completed packet and consistency of program implementation may be illustrated by comparing the most frequent book exchangers with the least frequent book exchangers in set 1 (see Figure 2). For this analysis, the children were rank ordered based on the average number of days between their set 1 packet exchanges. The group was then divided into thirds and the percent of words correct through each packet and number of days between packet exchanges for the seven children who exchanged packets most frequently and the seven children who exchanged packets least frequently were included in the analysis. The children from families who implemented the program most consistently maintained performance levels above 90% ("■" in Figure 2) and exchanged book packets every 7 to 11 days ("□" in Figure 2). In contrast, the children from families who implemented the program least consistently showed a steady decline in performance across packets ("▲" in Figure 2), while the number of days between book exchanges grew to almost 4 times that of the more successful children ("△" in Figure 2).

Discussion

The results of this study indicate that with a carefully sequenced curriculum and a minimum amount of instruction in how to teach letter-

Table 5

*Multiple Regression Analysis for Words in Packets
Completed for Children in the Home Reading Group*

Dependent Variable ($N = 20$)	Predictor Variables	*Step	R^2 (Adj. R^2)
Home Reading Group Words in Packets Completed	Letter Identification		
	Visual-Auditory Learning	2	0.55 (0.50)
	Phonemes in set 1		
	Words in set 1		
	Average days between packet exchanges	1	0.39 (0.35)
	Block 1		
	Letter Identification	1	0.31 (0.27)
	Visual-Auditory Learning		
	Phonemes in set 1		
	Words in set 1		
	Block 2		
	Average days between packet exchanges	2	0.52 (0.46)

* $p < 0.05$ for entry into the regression equation

sound associations and blending, many parents can effectively teach their children beginning reading skills in a relatively short time. Moreover, the results of this study corroborate and extend the findings from the original school-based field test of the SWRL/Ginn Beginning Reading Program (Hanson & Schutz 1975, 1976). In the original field test, children who completed more units of instruction scored higher on the end of year curriculum-based word reading and sentence reading assessments. This study extended the finding from the original field test in two important ways. First, the results of this study suggest that effects similar to the school-based implementation described in the original field test might be produced with

a home-based program implementation. Second, in the original field test the unit criterion measures administered by participating teachers showed that most children scored at criterion levels after completing an instructional unit. Thus, the correlation between the number of instructional units completed or number of reported instructional days and performance on instructional units was quite low. This low correlation is in contrast to the strong relationship between the end of year assessment and the number of instructional units completed. In the end of year assessments children who completed few instructional units were tested on phonemes and asked to read words that were never taught. Children who completed more

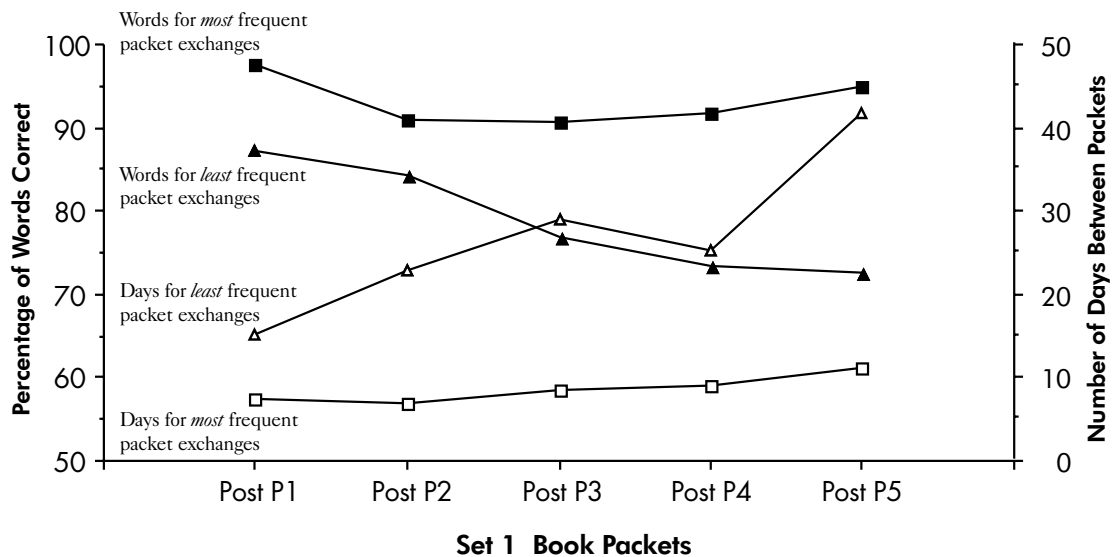
instructional units would, quite logically, benefit and the correlation between instructional units completed and the end of year assessment may be substantial. In the present study, word test scores were based on instructional packets completed and were similar to the unit criterion tests in the original field test. While the correlation between the unit criterion tests and instructional time in the original field tests was quite low ($r = 0.12$), the correlation in this study between children's performance through the packet they completed and number of days between packet exchanges was fairly strong ($r = 0.62$). Simply, children with fewer days between packet exchanges completed more instructional packets and might have had more

instructional time at home than children with more days between packet exchanges.

While it is clear that there is a relationship between the number of packet exchanges and children's performance, it is not possible from this study to draw conclusions about the nature of that relationship. For example, it is possible that when a child began to have difficulty with the curriculum, reading became an aversive activity for the parent and the child, so the parents were less inclined to set aside time for the program. In other families, the lack of consistency in program implementation may have led to increasingly poor performance because these children had to relearn an increasing number of

Figure 2

The relationship between readers performance after completing each set 1 reading packet (left y axis) and the average number of days between packet exchanges (right y axis) for the seven children who exchanged packets most frequently and the seven children who exchanged packets least frequently.



phonemes and the decoding strategies each time they sat down to read.

An important question confronted by this study is whether parents should take responsibility for their children's early reading instruction.

Clearly, with a well designed systematic early reading curriculum and a validated parent involvement program parents may successfully teach their children early reading skills with little systematic reading instruction provided at school. For this type of a parent involvement program to succeed, teachers must share their teaching authority with parents and must provide the support necessary for parents to have confidence in their teaching skills. The teachers' role changes from the primary instructor to the instructional manager who monitors children's progress and provides appropriate materials and timely instructional assistance so the parents may meet their children's learning needs (Epstein & Becker, 1982). In addition, the teachers' program selection is critically important because that decision influences the amount and type of instructional assistance parents need and, ultimately, the success of the program. The type of program implemented in this study directly supports suggestions "that schools should help parents provide better educational environments at home for their children" (Slaughter, 1987). It is clear that additional research is needed to delineate which curricular goals and skill targets are most appropriate for this type of parent involvement with children.

While it is clear that parents may successfully provide early reading instruction, it is not clear when that instruction should be provided. Several researchers (Chall, 1996; Gersten & George, 1990; Mason, 1984) suggest that the timing and quality of early reading instruction may improve children's achievement in the primary years. Hanson and Farrell (1995) reported in a follow-up study of children taught to read in kindergarten in the mid 1970's that at age 17

to 18 (seniors in high school) these children had superior reading skills, had higher attendance and higher grades, needed less remedial reading instruction, and spent more time reading outside of school than children who did not receive kindergarten reading instruction. These data provide a strong argument that systematic initial reading instruction should be undertaken in kindergarten. However, it is not clear when, during kindergarten, reading instruction should begin. As indicated by their letter identification and visual-auditory learning scores, by the middle of the school year, most of the children in this study had at least some of the skills needed to benefit from early reading instruction. Indeed, it is possible that many of these children began the school year with the phonemic awareness skills necessary to benefit from early reading instruction. Almost all of the parents who participated in this study had completed some postsecondary education and almost all of the parents indicated that they read to their children regularly. Even with this select group of children, it is not clear if the children would have gained additional benefit from reading instruction at the beginning of the school year. For all the children participating in this study, this was their first year in a school environment with as many as 250 children. Learning how schools work, how to behave in the classroom and on the playground, and developing healthy relations with the older children in the school, are a few of the many daunting tasks confronting the children as they begin their school careers. Beginning the school year concurrently with an instructional program that includes skills that require consistent practice to master may be overwhelming. Rather, beginning the school year with story reading and phonemic awareness activities similar to those practiced in this kindergarten environment, may be a conservative and, in the long run, beneficial approach while the children become accustomed to the school "culture." It is clear, however, given the short term benefits that appear as soon as 6 or 7 years old (Stahl & Miller,

1989) and the long term benefits that accrue from a systematic approach to early reading (Hanson & Farrell, 1995), that the kindergarten instructional program must move expeditiously and judiciously toward early reading instruction especially for children who display little or no knowledge of letters and printed words.

The results of this study were achieved with a select population of highly educated and motivated parents. Moreover, the home reading group included more mothers with graduate degrees and more parents in the \$30,000 to \$40,000 income range than the control group. The extent to which these differences affected the reported outcomes is not known. Both the home reading and control group children clearly had all the advantages that Hart and Risley (1996) found with children of college educated professionals. It is likely that most of these parents provided their children rich language experiences in a positive environment. Moreover, these parents valued education. Many of the children who participated in this study were placed on the admissions list for the university-sponsored elementary school soon after they were born and their parents renewed their placement on the list yearly until kindergarten. Finally, 20 of 21 families maintained participation in the program even though some parents did not consistently use the program. It is not known if a similar program in a public neighborhood kindergarten would produce similar results without more extensive parent support than was provided in this study. Comments from some of the parents and anecdotal observations of reading sessions suggest that having sole responsibility for teaching their child to read was at times a heavy burden for parents. For example, several parents commented that it was difficult to schedule consistent daily reading time and some parents had difficulty addressing misbehavior during the reading session or interruptions from other children in the home. In contrast, other parents were ecstatic about the program and reveled in watching their child's read-

ing progress. Several parents indicated that "it is a great program" or indicated that their child's "ability to sound out words has improved significantly." Moreover, many parents showed us unique ways to schedule the reading into their child's day, involve siblings in the reading sessions, and to make learning to read a positive experience.

To some extent this study may be limited by using different standardized pretest and posttest measures. The purpose of the pretest measurement was to assert that the children in the home reading and control groups had similar reading skills prior to beginning the program and that it is likely the observed changes at posttest were not due to developmental growth in the children or other systematic events that might have occurred concurrently with the home reading program. A close examination of the logic used to select pretest and posttest measures and children's performance on those measures provides ample evidence to support the internal validity of the study. First, the children in both groups entered the study with similar mean scores on the reading readiness measures and there was a similar distribution of scores within each group. In addition, the children in both groups demonstrated that they only knew approximately 25% of the phonemes in the set 1 books and could read approximately 20% of the words. As a whole, these data suggest that, at the beginning of the study the children in both kindergarten classes may have known many letter names and had the necessary visual-auditory learning skills needed for reading, but they knew few letter sounds, and thus did not know how to blend sounds, and recognized few words. On the posttest, the children in the control group approximated the WRMT-R norms on their word identification and word attack tests. While the phoneme test was not repeated, these children did not recognize substantially more words than they recognized on the pretest four months earlier. One inference that may be drawn from these data is

that even if the children knew the sounds in the words, they did not know how to blend the phonemes to derive words. In contrast, the children in the home reading group demonstrated that they knew the words in the first set of books. Moreover, a significant proportion of the variance in children's WRMT-R word attack scores were accounted for by their participation in the home reading program. Importantly, these data suggest that participation in the home reading program contributed significantly to whether the children could blend phonemes to derive "words" that they had not seen before.

A number of questions are left unanswered following this study and may be worthy of empirical examination. It is not known how closely parents followed the instructional interaction frames they were taught during the parent workshop and it is not known how much deviation from the prescribed reading approach will produce similar results. *Reading For All Learners* (Hofmeister et al., 1996) also includes a number of instructional design features such as comprehension questions interspersed throughout the story and "smiley faces" as reminders to praise children's reading skill. It is not known if the addition of these features has a differential effect on how parents use the curriculum. The answers to these questions are important to help define how much parent training is sufficient for program success.

The intervention included a school/home connection component as well as the parent training package. The school/home connection included a short group meeting with the children each morning and a parent comment sheet. Children were encouraged to go to their group meeting each morning, but were not required to attend. In the group meeting children received stickers for attending group sessions, and received group recognition for completing packets of books. In addition, the teachers attempted to create interesting short activities related to the reading series to motivate the

children to attend the group meetings and to read. Often, however, attendance at group meeting competed with time to play at the water table, painting activities or novel arts and crafts activities. As such it is not clear what impact the group meetings had on the children. Approximately eight of the children attended the group meeting faithfully every morning, while other children attended sporadically. It would seem that for general classroom use, the short group meeting would be an important learning link between home and school. In this situation the intended message from the group meeting was that learning to read at home is important and valued at school. For the group meeting to be a supportive component of the home reading program, it must be integrated into the daily classroom structure so the message "learning to read at home is important" is delivered to the children clearly.

Similarly, a logical analysis suggests that the parent comment sheet would serve as an important tool for parent/teacher communication. Some of the parent comments provided valuable information about revising the curriculum or responding to parent queries about how to handle specific instructional or management situations with children. For example, parents indicated which comprehension questions were not written clearly, when graphics and story text did not align, or when book titles did not make sense.

Finally, several of the parents commented that the stories did not hold children's interest like some literature based stories. A paired reading technique (Topping & Whiteley, 1990) accommodates this problem by using reading materials that maximize child interest and maintain a high level of parent-child interaction during reading. Researchers consistently report strong parent and child enthusiasm for a paired reading approach (Toomey, 1993; Topping & Lindsay, 1992; Topping & Whiteley, 1990). Topping (1986) described a paired reading variation specifically designed for beginning readers, but

there is no adequate evidence of its effectiveness either in conjunction with a school-based reading program or independent of a school-based reading program. It seems that an important challenge for the future is to design early reading programs that capture parent and child enthusiasm yet systematically develop children's phonemic knowledge, word recognition and word attack skills.

References

- Chall, J. (1996). *Stages of reading development* (2nd ed.). New York: Harcourt Brace College Publishers.
- Chall, J. S., Jacobs, V. A., & Baldwin, L. E. (1990). *The reading crisis: Why poor children fall behind*. Cambridge: Harvard University Press.
- Chavkin, N. F., & Williams, D. L. (1989). Low-income parents' attitudes toward parent involvement in education. *Journal of Sociology & Social Welfare*, 16(3), 17–28.
- Coates, K., & McLaughlin, T. F. (1992). The effect of parent tutoring on oral reading rate with measures of clinical significance. *British Columbia Journal of Special Education*, 16, 241–247.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Cuckle, P. (1996). Children learning to read—exploring home and school relationships. *British Educational Research Journal*, 22, 17–32.
- Duvall, S. F., Delquadri, J. C., Elliot, M., & Hall R. V. (1992). Parent-tutoring procedures: Experimental analysis and validation of generalization in oral reading across passages, setting and time. *Journal of Behavioral Education*, 2, 281–303.
- Ebey, T. L., Marchand-Martella, N., Martella, R., & Nelson, J. R. (1999). Using parents as early reading instructors: A preliminary investigation. *Effective School Practices*, 17(3), 65–71.
- Epstein, J. L. (1990). School and family connections: Theory, research, and implications for integrating sociologies of education and family. In D. G. Unger and M. B. Sussman (Eds.), *Families in community settings: Interdisciplinary perspectives* (pp. 99–126). Binghamton, NY: Haworth Press.
- Epstein, J. L., & Becker, H. J. (1982). Teachers' reported practices of parent involvement: Problems and possibilities. *The Elementary School Journal*, 83, 103–111.
- Fox, R. M., & Fox, C. L. (1986). A demonstration of a successful parent-conducted remedial reading program. *Journal of Special Education Technology*, 12(3), 47–53.
- Gang, D., & Poche, C. (1982). An effective program to train parents as reading tutors for their children. *Education and Treatment of Children*, 5, 211–232.
- Gersten, R., & George, N. (1990). Teaching reading and mathematics to at risk students in kindergarten: What we have learned from field research. In C. Seefeld (Ed.), *Continuing Issues in Early Childhood Education* (pp. 245–259). Columbus: Merrill.
- Glass, G., & Hopkins, K. (1996). *Statistical methods in education and psychology* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Glynn, T., & McNaughton, S. (1985). The Mangere home and school remedial reading procedures: Continuing research on their effectiveness. *New Zealand Journal of Psychology*, 14, 66–77.
- Grossen, B. (1997, February). 30 Years of research: What we now know about how children learn to read [On line]. *The Center for the Future of Teaching and Learning*. Available: <http://www.cftl.org/30years/30years.html>
- Hannon, P. (1987). A study of the effects of parental involvement in the teaching of reading on children's reading test performance. *British Journal of Educational Psychology*, 57, 56–72.
- Hannon, P. W., & Cuckle, P. (1984). Involving parents in the teaching of reading: A study of current school practice. *Educational Research*, 26, 7–13.
- Hanson, R. A., & Farrell, D. (1995). The long-term effects on high school seniors of learning to read in kindergarten. *Reading Research Quarterly*, 30, 908–933.
- Hanson, R. A., & Schutz, R. E. (1975). *The effects of programmatic R&D on schooling and the effects of schooling on students: Lessons from the first year installation of the SWRL/Ginn kindergarten program* (Technical Report 53). Los Alamitos, CA: Southwest Regional Laboratory for Educational Research and Development (ED126018).
- Hanson, R. A., & Schutz, R. E. (1976). *Instructional product implementation and schooling effects: Lessons from the second-year installation of the SWRL/Ginn kindergarten program* (Technical Report 56). Los Alamitos, CA: Southwest Regional Laboratory for Educational Research and Development (ED124925).
- Hart, B., & Risley, T. R. (1996). *Meaningful differences in the everyday experience of young American children*. Baltimore: Brookes.
- Henderson, W., & Glynn, T. (1986). A feedback procedure for teacher trainees working with parent tutors of reading. *Educational Psychology*, 6, 159–177.

- Hofmeister, A., Findlay, P. H., & Willis, P. (1996). *Reading for all learners*. Logan, Utah: Center for Information Technology.
- Koven, J. T., & LeBow, M. D. (1973). Teaching parents to remediate the academic problems of their children. *The Journal of Experimental Education, 41*(4), 64-73.
- Leach, D. J., & Siddall, S. W. (1990). Parental involvement in the teaching of reading: A comparison of hearing reading, paired reading, pause, prompt, praise and direct instruction methods. *British Journal of Educational Psychology, 60*, 349-355.
- Love, J., & VanBiervliet, A. (1984). Training parents to be home reading tutors: Generalization of children's reading skills from home to school. *The Exceptional Child, 31*, 114-127.
- Mason, J. (1984). Early reading from a developmental perspective. In P. D. Pearson (Ed.), *Handbook of reading research* (pp. 505-543). New York: Longman.
- Reynolds, A. J., Weissberg, R. P., & Kaspro, W. J. (1992). Prediction of early social and academic adjustment of children from the inner city. *American Journal of Community Psychology, 20*, 599-624.
- Ryback, D. & Staats, A. W. (1970). Parents as behavior therapy technicians in treating reading deficits (dyslexia). *Journal of Behavior Therapy and Experimental Psychiatry, 1*, 109-119.
- Scott, J. M., & Ballard, K. D. (1983). Training parents and teachers in remedial reading procedures for children with learning difficulties. *Educational Psychology, 3*, 15-30.
- Slaughter, D. T. (1987). The home environment and academic achievement of Black American children and youth: An overview. *The Journal of Negro Education, 56*(1), 3-20.
- SPSS 6.1 for the Macintosh* [Computer Software]. (1995). Chicago: SPSS Inc.
- Stahl, S. A., & Miller, P. D. (1989). Whole language and language experience approaches for beginning reading: A quantitative research synthesis. *Review of Educational Research, 59*, 87-116.
- Sutherland, I. R. (1991). Parent-teacher involvement benefits everyone. *Early Child Development and Care, 73*, 121-131.
- Tizard, J., Schofield, W. N., & Hewison, J. (1982). Collaboration between teachers and parents in assisting children's reading. *British Journal of Educational Psychology, 52*, 1-15.
- Thurston, L., & Dasta, K. (1990). An analysis of in-home parent tutoring procedures: Effects on children's academic behavior at home and in school and on parents' tutoring behaviors. *Remedial and Special Education, 11*(4), 41-52.
- Toomey, D. (1993). Parents hearing their children read: A review. Rethinking the lessons of the Harringey project. *Educational Research, 35*, 223-237.
- Topping, K. (1986). W.H.I.C.H. parental involvement in reading scheme? A guide for practitioners. *Reading, 20*(3), 148-156.
- Topping, K., & Lindsay, G. (1992). Paired reading: A review of the literature. *Research Papers in Education, 7*, 199-246.
- Topping, K., & Whiteley, M. (1990). Participant evaluation of parent-tutored and peer tutored projects in reading. *Educational Research, 32*(1), 14-27.
- Wilks, R., & Clark, V. (1988). Training versus nontraining of mothers as home reading tutors. *Perceptual and Motor Skills, 67*, 135-142.
- Woodcock, R. W. (1987). *Woodcock Reading Mastery Test—revised*. Circle Pines, MN: American Guidance Service.

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