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Center for the Study of Reading

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Intervention Procedures for Increasing Preschool Children's Interest in and Knowledge About Reading

Questions of the value and appropriateness of reading instruction for children who have not yet entered first grade have been debated for most of this century. The maturationist view emphasizes delaying instruction until children are "ready" for formal reading instruction, traditionally in first grade (Morphett & Washburne, 1931, among others, cited in Coltheart, 1979) even though descriptive studies (Bissex, 1980; Clay, 1972; Ferreiro & Teberosky, 1982; Mason, 1980) show that young children learn concepts about reading before going to school.

The debate regarding reading instruction is part of the broader context of intervention in the motor and cognitive skill domains. Hunt (1982, 1983), citing his own research and that of Razel, rejects the long-held contention that early training of preschool children has "no marked effect upon ultimate skills" as the widely quoted work of Gesell purports to show. Reanalysis by Razel of identical twin studies by Dennis (1941), Gesell and Thompson (1929), and McGraw (1935) which seemed to indicate that the untrained twin caught up with the trained twin actually showed the contrary effect, namely, that the trained twin continued to retain an advantage. Also, early intervention studies by Hunt and associates and by Heber (1978) have shown

that dramatic increases in intelligence test scores are possible through early intervention. Hence, the evidence does not support the argument for an overriding influence of maturational readiness. Rather the issues seem to focus on what type of instruction is most appropriate at a given time in a child's life. Early reading, which is our area of concern, still lacks a clear description of what should be taught and in what manner.

Our view is that the meaningfulness of print must be emphasized before engaging children in word analysis. That is, we propose that there exists a hierarchy of prereading concepts. First children must learn that particular and meaningful words and messages have printed counterparts (functional knowledge). When they have understood this concept (or set of concepts), they will be able to learn the letter-sound characteristics of the language (form and conventional rules). Further, we suggest that this hierarchy is not closely related to traditional views about maturational readiness for school instruction and is partially acquired by many children prior to formal reading instruction in first grade.

This position is derived from evidence by Bissex (1980), Clay (1972), Clark (1976), Ferreiro and Teberosky (1982), Mason (1980), Mason and Au (1981), Mason and McCormick (1979), Mason and McCormick (1981), and McCormick and Mason (1981). Children often acquire considerable knowledge of what and how to read as a function of informal experiences in recognizing and reading

words, spelling, printing, and being read to. An important aspect to this knowledge is an initial emphasis on meaningfulness of printed words and messages rather than on letter-sound characteristics. The following description of the proposed hierarchy from Mason and McCormick (1981) clarifies this point.

Level 1: The Functions of Print

In the first level, reading is highly contextualized; in a sense, it is similar to looking at and remembering pictures. Consequently, as children learn to recognize words that appear on traffic signs, packages, labels, billboards, and signs, attending mostly to the meaning, they do not realize that words need not be context-specific. Hence they may not recognize a familiar word in a new context, knowing, for example, STOP on a stop sign but not elsewhere. Also, even though they can learn words, they may not report their knowledge as we would expect. For example, several 4-year-olds in one of our studies learned the word rabbit, but later called it "bunny." Finally, although they frequently learn to name letters, they do not know how to use them for remembering words. For example, when asked to spell short words (with magnetic letters), they typically lay out in a random order all the letters we have provided. Thus, at this level of development, children are learning how to relate their oral language to print. However, then strategies for recognizing printed words are relatively ineffective and often tied to inappropriate clues.

Level 2: The Form of Print

As children become better acquainted with printed forms of words and letters, by, for example, learning the alphabet, having books and signs read to them and attempting to print letters, they pay closer attention to print. This gives them opportunities to notice structural characteristics of print, such as that the same word can appear in different places and that some letters have particular sounds that are repeated in words. This suggests that children's attempts to write, spell, and read familiar words (Bissex, 1980; Chomsky, 1977; Paul, 1976; Read, 1971) foster a change in viewpoint initiating a Level 2 understanding of reading. Children can reorganize their conceptual representation of how to learn and remember printed words by beginning to use letter-sound relationships. With this more accurate understanding about print, they are able to learn a large number of words, they can make quite reasonable guesses about spelling short words, and they will try to sound out some words they have never seen. However, as documented by Biemiller (1970), Bissex (1980), and Soderbergh (1977), their orientation at this level of development to letters and sounds may lead them to ignore or pay insufficient attention to context. Also, they have not learned that many individual letters have more than one sound and that clusters of letters provide more accurate cues to sounds than do single letters. We think this explains their attempts to map each letter to a unique sound (e.g., "we are" for

wear, "bigit" for bight), use the more familiar patterns for some letters or letter clusters (e.g., "rech" for reach, "blod" for blood, "word" for wierd, "mote" for moot) or become completely confused by words which violate the letter-sound patterns they have learned (e.g., "kanol" for knoll, "waff" for wharf, "brush" for bush; (Mason, 1976; examples by first grade children).

Level 3: Coordination of the Form and Function of Print

A third level of development is needed that appears to occur through extensive experiences in reading. We have found that children eventually notice the repetition of sounds for letter clusters in words (e.g., seed, need, feed) and realize the possibility of manipulating letter sounds in words. Bissex (1980), for example, describes a child's observation that to write look, replace the b in book with l; and Soderbergh (1977) pointed out games her child played with the morphophonemic characteristics of our language. Since a heightened awareness of orthographic redundancy and phonological patterns must reduce the burden of recognizing words, we suppose that this allows attention to be fixed once again on meaning. That is, because children now have efficient means to recognize letter patterns and letter sounds, we propose that Level 3 readers can feature again the meaningfulness of print. This suggests that they hold a more flexible view toward letter-sound relationships, being better able to recognize words that have unique patterns, and, making good guesses about the pronunciation of new words, they

can skip unknown words in order to attend to text meaning. Thus, Level 3 readers have acquired a sufficiently precise conceptualization of reading that they can progress rapidly in reading and can read and learn from more complex texts.

This hierarchical model of beginning reading skill was partly verified with data collected on children tested at the end of kindergarten and retested at the beginning of first grade (McCormick & Mason, 1981). A substantial change over the summer of knowledge of letter names characterized children who were at Level 1, a developing awareness of consonant sounds in words and simple spelling skill in part, charcterized children at Level 2, and a developing understanding of vowel sounds described children at Level 3. Similarly, monthly testing over a school year of preschool children who were provided with advantaged schooling and home experiences (Mason, 1980), showed a progression through Level 1 into Level 2 or progress in Level 2, well ahead of most children their age. While predictable changes in knowledge about early reading was apparent among these children of middle income families, we had not studied or tried to interview with children from low income families. We believed we had effective early reading materials and procedures but needed to test them with children who were more likely to be at risk academically.

In this chapter we will draw on aspects of our earlier work which led us to construct materials and procedures for our intervention studies. We will first describe how parents differ

in providing an atmosphere that favors learning to read. Second, we will document how their children differ in knowledge of letter names and sounds. Third, we will provide evidence of successful informal intervention strategies appropriate for children just beginning to understand the communicative value of the printed word. We will suggest that such an intervention may be most beneficial to those children least likely to "get off to a good start" in reading.

Support for Reading at Home

Three groups of parents from two of our earlier studies (Mason, 1980; Mason & McCormick, 1981) were given questionnaires regarding their support for activities related to reading. Responses were obtained from professional parents in a university community, parents who were primarily secretaries, students and clerks in a small college community, and parents receiving public aid. Parents from the higher income groups reported a higher level of support than did the public-aid parents, confirming our supposition that parent income or education is correlated with parents' attention to preparing their children for reading. Table 1 shows the percent of responses for each group.

Insert Table 1 about here.

On nearly every question the public-aid parents responded in the mid- or low-support categories more often than did either

other group. Two items with extreme group differences regard the number of alphabet books owned by the children and the frequency of discussion with parents concerning educational television. Many more of the mothers on public aid indicated little or no support on these items.

We later learned that some items on our questionnaire had underestimated the range of some items. For example, comments by some parents and later interviews with others revealed that many professional parents read not just two hours a week but every day; provided, not just one alphabet book but up to 20 (median = 3); and owned up to 200 children's books (median = about 20). Thus, the questionnaire and our augmented survey point to considerable variation among parents in their support for reading or learning about how to read at home.

Children's Print Knowledge

The children of the parents in the three groups described above and children in four additional groups were given several tasks of print knowledge. Two tasks of print knowledge, letter-naming and consonant-sound identification, were given to all the groups so can be compared here. The children's responses to these tasks show discrepancies among social class groups similar to those noted above from parent questionnaire responses. In Table 2 are data we collected from three groups of four-year-old children of professional parents (Groups 1, 2, and 3), four-year-old children of secretaries, students and clerks in a small

college community (Group 4), four and five-year-old children from a rural area (Groups 5 and 6) and five and six-year-old children of parents who were on public aid (Group 7). Keeping in mind that letter naming is the single best predictor of achievement in beginning reading from among those skills commonly measured on currently available reading readiness tests (Silvaroli, 1965; Lowell, 1971; Bond & Dykstra, 1967, as cited in Muehl & DiNello, 1976), the children were approaching first grade with very different skills in letter naming and consonant-sound identification. Children of professional parents named more letters than any other group and were matched only by the year-older rural children in consonant sounds. Group 5 rural children's scores were depressed in comparison to their age mates living in urban areas (Groups 1-4). The children in the public-aid group (7) were similar to the older group of rural children (6) in letter naming but had not transferred that knowledge to consonant sounds. Thus, the children were entering first grade with large differences in letter naming and consonant sound identification skills.

Insert Table 2 about here.

To test our supposition that substantial differences among the children remained when they entered school and that those with the least knowledge of beginning reading skills (Group 7)

were at academic risk, we searched for and found the first grade school records of 15 of the 19 children from the public-aid group. Nine (60%) had been placed in a remedial reading program, and 4 of these 9 also repeated kindergarten or first grade. A similar search for the Group 4 children (lower middle class) indicated that none of the 11 children for whom a follow-up was possible had repeated first grade; however, 1 child had received remedial reading instruction and 1 child was receiving extra instruction from a learning disabilities teacher.

In addition to the fact that the public-aid children were less skilled in letter naming, their mothers appeared to be less aware of the specific skills their children had acquired. Mothers in the public-aid group (7) overestimated how many letters their children could identify in 32% of the cases while mothers in the lower-middle income group (4) overestimated the number of letters their children could identify in 13% of the cases.

Other of our studies showed substantial differences among children in the same classrooms. For example, in McCormick and Mason (1981), children were asked to read 2- and 3-letter high frequency words. From among 50 children entering first grade, the 6 with the least knowledge of letters could read on average 1 out of 28 words, the 38 in the middle knew about 11 words, while the 6 most advanced children knew 26 of the 28 tested words. The low scoring group could identify only four of 52 letter-sounds

while the top group identified 45 letter-sounds. Similarly, in an unpublished analysis of 203 entering first-graders' reading, 94 could read none of the 20 common words showed to them but 6 could read them all. Nineteen could not identify any consonant-sounds while 27 could identify all 32 they were shown.

The evidence indicates that children who enter first grade at the bottom of the class usually continue to be behind their classmates in reading (Calfee & Piontkowski, 1981). Hence, an intervention which fosters interest in and understanding of the printed word before children enter first grade may be very important for those children entering first grade who have little familiarity with printed letters and words and so are likely to be less successful in acquiring reading skills.

Instructional Intervention

A year-long training study in a university community of preschool children's (Groups 1, 2 and 3) acquisition of print knowledge (Mason, 1980) compared the effects of an orientation to the meanings of printed words to the effect of an emphasis on letter names and sounds. A higher recall of printed words that had been taught and higher scores on task of reading new 3-letter, common words supported the hypothesis that the meaning treatment was more effective. We supposed, but had no proof then, that the children made more progress because the word meaning treatment had featured the use of very easy-to-read little books. Observations of the children during the fall

semester revealed that the meaning-oriented group spent more of their playtime reading, writing, or involved in reading-related activities than did the letter-oriented group (23% and 15%). Tests given at the end of the school year showed that, while both groups knew letter names, the group oriented to the meaning of print had somewhat higher scores on tasks of word reading, spelling and printing than did the other group. However, because other materials also varied and the same teachers did not teach both groups, there was no way to measure the effects of the book materials alone. The next year a careful record of the number of easy-to-read little books borrowed for home use determined that children borrowed from 1 to 29 books during the year, an average of 9 books. Interviews with the teachers indicated that they believed the books were leading children to become more interested in reading at an earlier age and to make more rapid progress in their knowledge of printed words and letters. We were thus encouraged to study the intervention of reading activity for preschool children more systematically and with children who were obtaining less support at home for reading.

At this point we believed that learning to read the little books had a significant impact on preschool children's interest in reading because reading or reciting the books encouraged them to be more attentive to or aware of print in their environment. The next studies began a series which focused on the little books

as a means of fostering children's interest in and knowledge about beginning reading.

We constructed books with very simple storylines (often a single sentence separated into short phrases, one phrase to a page) and our own simple line drawings. We evolved an instructional procedure that relied on rereading. Children were encouraged to read or recite the words from each page after a demonstration by the teacher. Each story had a punch-line ending which we thought would delight the children, and we aimed for a text that would foster accurate recitation by the children. Throughout this report when we refer to a book reading we are describing the children's responses to one of our stories. See Appendix A for examples.

A training study was conceived for Group 4 children (children of college student, secretaries and clerks). As reported in Mason and McCormick (1981), children were trained for a two-week period using the little books and emphasizing either the print meaning or the letters and their sounds and shapes. Analyses of the children's responses in the videotaped lessons suggested that they profited more from instruction that helped them think about the meaning of printed words than from instruction that emphasized letter names and letter sounds. It was argued, not that these young children should never receive letter instruction, but, because they had had so little acquaintance with print, they needed as a first step to

understand the relationship of printed words to meaning and to their own language.

In this study all but one of the children could recognize no letter sounds or words and basals knew any letters. As expected, analyses of their videotaped lessons showed that they responded with greater frequency and accuracy to Level 1 training tasks which emphasized the meaning of printed words and reading words in context (book reading) than they did to the Level 2 training tasks which focused on initial consonant sounds. This finding was confirmed by comments from preschool teachers and parents that the little books provided a format in which the children could successfully participate; the task was compatible with their conceptual understanding and skills.

A favorable short term impact of learning to read these stories was then extended by giving each child several favorite little books to take home. Even though the parents were not alerted to the use of the books, a follow-up questionnaire three weeks after the intervention indicated that 13 of the 14 children still living in the area were very interested in the books (the other child forgot to take his books home from school) and that 12 of these 13 were "reading" the books either occasionally or frequently.

The comments by the parents were uniformly positive and enthusiastic. Two immediate effects were apparent. First, according to parents, their children began to "act like readers"

because of these books and for the first time wanted to read (these) stories over and over to parents, siblings and even stuffed animals. Second, these materials made the parents more aware of the children's interest in letters and words. Not only did the parents report that their preschoolers were more interested in reading other words after the intervention, but they became more involved in responding to the child's questions concerning letters and words.

The long-term effect of our little books was surprising considering the relatively short intervention and that any impetus for using the little books came solely from the children. Six months after the intervention the parents responded again to our questionnaire concerning their children's knowledge and parental support. The estimates of children's knowledge of and interest in letters and words significantly increased even though estimates of parental support did not change (Mason & McCormick, 1981). As a further test of the impact of our materials the following year a matched group of parents whose children had not received the materials was given the questionnire. The estimates of child knowledge and parental support were nearly identical to the experimental group prior to the intervention. Thus, we could say with confidence that our materials and intervention had a significant impact on these three and four-year-old children's knowledge of and interest in letters and words.

Our work thus far allowed us to make several general conclusions. First, low SES children are entering school with less knowledge of letters, letter sounds, or words than are children of higher SES, and the parents of these children are not fostering or supporting acquisition of prereading skills to the same degree that parents in higher SES levels are doing. Second, easy-to-read books are especially appealing to preschool children and can make a significant impact on children's interest in prereading and knowledge of letters and words. Third, parents respond extremely favorably and take a more active interest in their child's early reading skills when easy-to-read books are available.

Since even a two-week intervention is an expensive undertaking and not likely to be implemented in many preschool centers, and because of the outstanding popularity of the little books with all children who used them, we decided to try out a low cost procedure that could be duplicated by any school or preschool center. We devised and tested two minimal intervention procedures. One was directed to a Headstart class in a small city in central Illinois. We visited the classroom on three occasions, videotaping lessons to the children for the purpose of demonstrating to the teacher how to help the children learn to read the little books and to document change in reading by the children themselves. The results were reported by Mason, McCormick, and Bhavnagri (1983) showing that the children

eventually did make substantial gains in their reading interest and ability to participate in the reading lesson. The other minimal intervention procedure involved giving low and middle income parents a packet of several little books and guidelines for their use as they brought their preschool child for the preschool screening provided by the school districts in the spring of the year. This was carried out for two consecutive years. Wave 1 children, on two occasions during the next months, received another packet of books by mail. Parents met us only once--at the screening--and the child saw us only when tested and never realized we had sent them the books. Wave 2 children received only the packet of books at the preschool screening. The children who came to kindergarten the following fall were then tested and compared with classmates who had not received the materials. This experiment, which was reported by Mason and McCormick (1983), is presented next.

Method

Procedure

The Wave 1 experimental group consisted of all the prekindergarten children that came on two days of the five that were open for the preschool screening. Children were free to come on any of the five days and we included in the experimental group all the children registering for kindergarten on the two days we were available for pretesting. They were given the Developmental Indicators for the Assessment of Learning (DIAL),

the screening instrument used by the school district to identify those children in need of further evaluation by special education personnel, and measures of letter identification, spelling and book reading, in which children were asked to read our "Stop" story before and after a demonstration by the examiner. The parent that accompanied them filled out a questionnaire assessing parental support for early reading and asking for an estimate of the child's interest in and knowledge about print. Following the testing, the child was given a copy of the little book she had been shown how to "read" and the parent was given a packet of three more books and a 3 page guideline for their use. We were pleased that all parents were interested in participating. During the summer, we sent by mail another packet of little books and another questionnaire to fill out which asked about their child's interest in the books, possible gains in knowledge and the parent's estimate of usefulness. A third packet of several little books was sent to their homes in the fall. At the beginning of kindergarten, these children, along with classmates who served as matched controls using the Peabody Picture Vocabulary Test (PPVT), were measured on a revised version of the Letter and Word Reading Test (Mason & McCormick, 1979). The subtests were: naming signs and labels in and out of context, naming 10 upper-case letters, printing a letter, a word, and the child's name, spelling four three-letter words, reading 20 common two or three-letter words, identifying consonant sounds, and reading three

little books, one of which the experimental children had been given to take home. The subtests were repeated in May with another set of little books and the following year first-grade teachers were asked to rank all their children by reading ability.

Wave 2 children (those who were registering for kindergarten on two of four days of preschool screening) were similarly tested during the preschool screening and introduced to a little book. Parents were again given guidelines and the children were given a packet of little books. However these children did not receive other packets of books later and were not retested at the end of the school year. Wave 2 children were also matched with a control group using the Peabody Picture Vocabulary Test-Revised (PPVT-R). Both groups were tested in early reading: naming 10 upper-case letters, spelling four three-letter words, reading 20 common two- or three-letter words, and reading three little books. One book was familiar to the experimental group, and the other two were new to both groups. With one of the new stories, the children were asked to identify specific words after hearing it read to them (a procedure similar to that described by Morris, 1981, as a measure of the young child's concept of word). With the other two, the children were asked to read or try to read the story.

Subjects

Twenty-three Wave 1 children entered kindergarten (scattered among three classrooms in the school district) and were present in school at the beginning and the end of the year for our follow-up tests. They were compared with 22 children who had not received the early reading materials but were in the same three classrooms in three schools. The following year, 27 Wave 2 children from another small, rural school district the were tested during the preschool screening using the same selection procedure. These children were compared with 26 classmates from the same two classrooms. Their posttest was administered in November of the children's kindergarten year. Both posttests were given by experimenters who did not know which children were experimental and which were control group subjects.

Results

Wave 1

A stepwise multiple regression program (SPSS) was used in order to predict children's end-of-kindergarten reading test scores. The first predictors were the child's gender and PPVT score. The next predictor was treatment (experimental versus control). The child's age, information from parents about their support for reading, and parents' estimate of their child's letter knowledge and word knowledge were omitted from the final analysis since an earlier analysis showed that they did not add to the prediction. Thus, a three variable model (gender, PPVT

score, and treatment) was used to predict May scores on word knowledge (sum of subtests of common words, sign and label words, and identification of consonant sounds in nonsense words), letter knowledge (the sum of upper case letter naming and printing), spelling knowledge (the number of letters correctly positioned to spell four words), story knowledge (the sum of the number of words read from the three little books), and the whole test (sum of all subtests). Table 3 presents a summary of the five regression analyses; Tables 4 and 5 display information about each test variable.

Analyses of Wave 1 children's reading knowledge indicate reliable and longlasting effects of the treatment. Word knowledge and spelling scores at the end of kindergarten (May testing) were predicted by treatment and entering vocabulary (PPVT). Story reading was predicted by treatment only and letter knowledge by the PPVT only. Information from the parent questionnaire did not predict children's reading knowledge because, entered after accounting for vocabulary (PPVT) differences, it was not sensitive enough to pick up subtle differences in parental support for reading.

Insert Tables 3, 4, and 5 about here.

The treatment affected not only story reading but also word reading and spelling. Because the words on the word reading and

spelling subtests were new (in the sense that the words were not in the little books) and 2 of the 3 stories in the story subtest were new, the results showed that the treatment influenced not only children's reading of the story that was given to them but transferred to reading new stories and reading and spelling new words. Moreover, the lack of a vocabulary effect when story reading was the dependent measure suggests that the treatment helped to overcome incoming language ability differences among the children. The lack of effect of treatment when letter knowledge was the dependent variable is not surprising since letter naming and name printing had been taught to most of the children while in kindergarten.

Finally, longer term effects of the treatment were assessed at the conclusion of first grade. The control and experimental children had been distributed among five first grade classrooms in this small school district, and all classrooms used the same basal reading series. The first grade teachers in the school district were asked to rank the children in their classrooms according to reading skill and to give the reading group classification for each child. The teachers, who were unaware of the minimal intervention study, ranked a total of 111 children, 21 of whom had been in the control group and 18 in the experimental group.

To compare the groups a proportional ranking for each child was calculated and then averaged for each group. The average

ranking for the control group was the 41st percentile and the average ranking for the experimental group was the 46th percentile, although the children had originally been matched on PPVT scores early in their kindergarten year. During the calculation of the proportional rankings it appeared that very few of the experimental children were in low reading groups. When the number of experimental and control children in the low reading group for each class was counted, there was only 1 (6%)[1] from the experimental group but 6 (29%) from the control group. (For the entire first grade 32 of 111 (29%) children were in low reading groups.) While the proportional rankings of the experimental and control groups show a small difference, the striking disparity in the number of children placed in low reading groups indicates that the impact of our intervention appeared most notably among those children likely to get off to a slow start in beginning reading instruction.

Wave 2

Wave 2 children, who had been given fewer books and were tested at an earlier time, showed a smaller instructional effect. Children's story reading but not word reading or spelling was affected by treatment and the PPVT-R (Table 6). The effect was reliable for an old story ("Stop") and a new story ("Ghosts"). However, the word identification task using a new story ("Apples") was in the expected direction only and did not reach statistical significance (Table 7). The diminished treatment

effect for Wave 2 children could be explained either by an earlier post-testing date or to the provision to parents and children of fewer materials. Either way, the main finding of enhanced book reading for old and new stories was replicated.

Insert Tables 6 and 7 about here.

A Further Examination of Individuals

For many years our society has focused on reading acquisition within the perspective of schooled instruction. Only recently have we realized how much information young children acquire about print before beginning formal reading instruction and how this knowledge affects the success of instruction they receive. The change in viewpoint has already influenced attitudes about failure to read, and it has fostered kindergarten instruction in reading and parental support for reading before children start school. The results here impinge most directly on the third change. A few simple reading materials and a brief set of guidelines to parents can influence children's attention to print, their knowledge about how to read stories, and their later performance in first grade.

Up to this point in the analysis, we have not addessed an important issue which must follow from a finding of a successful intervention. That is, why did it succeed? In the hopes of understanding why the minimal intervention had an impact, we

compared four Wave I children, a boy and a girl each from the experimental and control groups. Since our intervention affected children who were less well-prepared to participate in first grade instruction (and thus likely to be placed in the low reading group) we chose to exemplify children with entering test scores among the lowest in their group. The two experimental children had correctly named only a few of the letters presented at the initial testing at the preschool screening. We compared them with two control children whose initial testing in November of the kindergarten year was very similar to that of the two experimental children. All used the same reading readiness workbook (prescribed by the school district) in kindergarten, and all four children received special reading instruction, in addition to their regular classroom instruction, through Title I programs in the first grade.

The mothers of the four children were interviewed at the conclusion of their child's year in first grade using an interview being developed by Mason and Bhavnagri to examine home influences on reading acquisition. All four of the children were from two-parent, lower-middle class homes. All mothers reported that their child brought school papers home several times a week and that they would review the papers with their child. All said that the children had homework (usually reading or doing math workbook pages or dittoed sheets) several times a week and that they would give help if needed--usually helping with directions.

All the children watched several hours of television a night (although less in warm weather) and cartoons all Saturday morning. The four mothers reported encouraging certain types of decisions by their children, such as choosing a restaurant for dinner or how to spend their birthday money, and all mothers had expectations of their child for home responsibilities, the most common being keeping the child's bedroom "picked up."

Our testing of the children's knowledge about reading revealed differences in their progress as a function of the treatment. A member of the experimental group, Wendi, at the initial testing during the preschool screening readily attempted our stop story and gave a verbal description of the illustrations. She tried letter names and numbers for the 10 uppercase letters she was asked to identify but did not correctly identify any. When asked to spell three-letter words using movable letters she did not respond.

Her mother reported in the questionnaire at the preschool screening that Wendi could recite a few letters of the alphabet, that she was read to about two times a week, that she would once in a while make alphabet letters while drawing or painting and that she had more than 20 children's books at home, including an alphabet book.

In the follow-up questionnaire (accompanying the second set of books sent to the child's home about six weeks after the first set were given at the screening), the mother reported that Wendi

was still very interested in the books, frequently reading them to herself and occasionally asking someone else to read them to her. She reported that Wendi seemed more interested in naming and printing letters, was more interested in reading and writing words, and was more interested in reading or looking at books since receiving the books at the screening.

When tested in November of her kindergarten year, Wendi recognized 1 word out of 12 sign and label words. These words were presented first in the context of a sign or label, such as a box of crayons, a stop sign, or a Kool-Aid package (to assure familiarity) and then presented out-of-context but using the script appearing in the sign or label. She correctly named 4 of 10 uppercase letters and attempted the spelling task, but chose incorrect letters for each word. When asked to read the familiar stop story, she correctly read all 13 words exactly as printed and gave adequate descriptions of the illustrations in a new little book.

In May of the kindergarten year Wendi recognized two printed words from the sign and label task: STOP and M&M. She correctly named all 10 uppercase letters and correctly spelled all four words requested: cat, top, sat and pot. She identified 28 of 32 consonant sounds in three-letter nonword strings, e.g., pab, dak, lam. Again she correctly read the 13 words in the stop story, read (or recited) 23 of 25 words in the farm story (a book she had received in the mail) and reported 15 of 19 words in a new

story about bedtime. (See Appendix A for the text of these books.)

At the conclusion of first grade Wendi was ranked 6th in a class of 22 and in the upper middle reading group. During the interview with her mother in the first weeks of summer following first grade, her mom stated that Wendi loves to play school with her four-year-old sister and that this includes frequently reading to her sister and writing on a little chalkboard, although the mom wasn't sure about what was written and guessed it was probably names and short words from school. When asked if she remembered the little books, the mother said Wendi still had them although they were worn out. The mom said that Wendi would read ("had memorized them really") the books to whomever would come to the house and that Wendi would always take the stories on visits to her grandmother. The mom stated that she thought the stories were helpful; they "were a good idea for (Wendi) . . . They helped her know that reading was more than one word, that words went together."

The second child from the experimental group, Jason, in the initial testing attempted to read several pages of the stop story but did not turn the first page without the additional cue of "What comes next?" After the book was read to him he correctly repeated 12 of 13 words in the story without reminders to turn the page. He correctly named 3 of 10 uppercase letters and gave incorrect lettername for the other seven. When asked to spell

the three-letter words with movable letters, he lined up all seven available letters, with none in the correct position.

In the parent questionnaire given at the preschool screening, Jason's mother reported that he would recite a few letters of the alphabet in order, that he was read to about two times a week, that he occasionally made letters in his drawing or painting and that he had about 10 books at home, including an alphabet book.

When the follow-up questionnaire was sent about six weeks later, his mother stated that Jason "looked at the books at least once a day," occasionally reading them to himself or other family members and occasionally asking someone to read the books to him. Mother reported increased interest in naming and printing letters, reading and writing words and reading or looking at books since the first books had been given to him.

Jason was absent during the testing in November.

In May of his kindergarten year, Jason recognized the following four sign and label words: crayons, STOP, EXIT and M&M. He correctly named all 10 uppercase letters and on the spelling task gave the correct initial consonant for the four words, then adding the rest of the available letters. On the consonant sound task, Jason did not blend the three-letter strings but correctly produced 10 of 32 consonant sounds. When asked to read the stop story he correctly identified 9 of 13

words and when asked to read the farm story (received in the mail) he mentioned that he had this book at home but that his mom had not read it to him. He did correctly identify 5 of 23 words, in the book. He also correctly repeated the 19 word bedtime story which was first read to him by the examiner.

At the conclusion of first grade, Jason ranked 12th of 23 and was in the middle reading group. In the interview with Jason's mother in the first weeks of summer vacation his mom reported that Jason listens to stories read to his four-year-old brother about twice a week and occasionally reads a story to the brother himself. The mom reported that Jason frequently writes at home, mostly lists of names and words copied from books. He also plays school occasionally on weekends when his five- and seven-year-old step-siblings visit. His mother reported that he usually reads something every day, such as stories by Dr. Seuss or Smurf comics. When asked about the little books, his mom stated that she thought they gave him a "good start" and that he still has them in his drawer. She explained that they were his books and this made him more interested in reading. She remembered that he knew "some of the words from the pictures."

Carla was in the control group, and at her first testing in November of her kindergarten year she recognized two sign and label words: STOP and EXIT. She correctly named 5 of 10 uppercase letters (with no response to the unknown letters), and gave no response on either the spelling or consonant

identification tasks. She readily attempted the stop story and correctly identified two words. On a second story she also identified 2 words correctly. In May she identified 3 sign and label words: crayons, STOP and EXIT, and correctly named all 10 uppercase letters. She still did not respond to the spelling or consonant tasks. When asked to read the little books she correctly identified 5 words in the stop story and 7 words in the farm story. She reported 11 of 19 words in the bedtime story.

At the conclusion of first grade, Carla was ranked 18th in a class of 24 for reading skill and was in the low reading group. In the interview her mother reported that a 10-year-old sister reads to Carla about two times a month and that Carla reads library books, such as Dr. Seuss stories, although she prefers playing games with her sister. When asked about writing at home, her mom stated that Carla usually writes, names mostly, during church on Sundays but does not write at home. During the discussion her mother stated that Carla had not been as interested in learning to read as her sister had been and that the parents had been concerned about her progress all year. The mother reported that she had asked the teacher for a conference several times in order to get suggestions for helping Carla with her reading but that the teacher had not responded. Her mother said that any suggestions that could be given to parents would have been helpful to them.

The second child from the control group, Billy, was first tested in November of his kindergarten year. He recognized none of the sign and label words, correctly named one letter and did not attempt the spelling or consonant tasks. He readily attempted the stop story, correctly identifying 3 words, and read 2 words in another story. In May he recognized 1 sign and label word, EXIT, named all 10 uppercase letters, spelled cat but would not attempt the other words and could not identify any consonant sounds. On the stop story he identified 3 words and gave 6 words on the farm story. He correctly repeated 14 of 19 words from the bedtime story.

At the conclusion of first grade, Billy was ranked 19th in a class of 24 and was in the low reading group. In the interview his mother explained that no one reads to Billy now because school is out. He tried to read from his story book when school was in session but not in the summer. She also stated that at the first grade teacher's suggestion, they began to limit his TV watching. Billy was not interested in the alphabet or books before kindergarten.

Despite the similarities among the four children at the beginning of kindergarten, the control children scored lower on the spelling, consonant and story reading tasks at the end of kindergarten and were ranked well below the two experimental children at the end of first grade. This may be explained by differences noted in the interview. The control children, but

not the experimental children, were reported by parents as having been not interested in printed letters and words prior to first grade. The parents of Billy were not displeased with his limited progress, and although they appeared to ensure that he completed his school work, their responses suggest that they were not very involved in monitoring his progress in reading or felt that it was entirely the responsibility of the teacher. Even though Carla's mother appeared distressed over her daughter's slow progress in reading and frustrated that she did not know what to do to facilitate the acquisition of reading skill, she felt helpless to intervene in a positive manner without direction from the teacher. Our impression is that the parents of these control children either did not know how to encourage their child's interest in printed letters or words or did not spontaneously respond to child-initiated opportunities to talk about printed letters and words. The experimental children, however, were reported to have responded with enthusiasm to the books and to have involved other family members in their use of the books.

All four of these children had very low letter naming scores on the initial testing. By May of the kindergarten year all four had mastered uppercase letter naming and were able to print their names, both skills emphasized in the kindergarten program. However, the two children from the experimental group showed dramatic improvement on consonant sound identification while the two children from the control group were still unable to identify

any consonant sounds at the end of kindergarten. These differences reflect the larger group differences. For both the experimental and control groups only one child in each identified any consonant sounds on our task in the November testing. In May, only 45% of the control group but 64% of the experimental group identified at least one consonant (with mean scores of 5.9 and 7.2, respectively).

Discussion

As frequently happens, answering one question, namely, how an intervention can affect young children's early reading, has now raised other questions. How should future interventions be implemented and what are theoretical and instructional implications of this work? Concerning implementation procedures, our results (and the personal response from a kindergarten teacher who had begun to use the little books to supplement her regular prereading activities) suggest that easy-to-read books are especially helpful to children entering school who are less well-prepared for reading, the most obvious effect being that the children like the stories and can readily behave like readers with books that they can read or recite and belong to them. Should these materials be provided only to those children with limited knowledge and interest in reading at the beginning of kindergarten? Since all the parents of Wave I children who responded to our questionnaire six weeks after receiving the initial packet of books reported that their child was still

interested in the books and all reported increased interest in printed words, we think everyone should be given these materials, but we cannot be sure of this position.

The study also does not determine when or how many books should be sent home. We chose to send them before and at the beginning of kindergarten because our other studies had determined that they could be read by such young children. If they had been sent during or after kindergarten, would they have been as effective? We do not know. We also cannot compare the effect of these materials to others, though we certainly do not suppose that these are uniquely effective.[2] We can only recommend that some materials that children can easily read and enjoy reading be provided to parents.

How to advise parents about the use of early reading materials was not studied. Although the experimental children accurately recognized significantly more words in the books, in the specific cases described above, Jason recognized as few words in the farm story as the two children from the control group. He said "I have this one at home," when he first saw the book but added that no one had read it to him. Although his responses were short, appropriate phrases, they did not match the exact words of the text. This raises the question of how to encourage parent involvement. Beyond that is the issue of whether memorizing the specific words printed in each story is essential. Must we stress that a parent read the book several times to the

child before allowing the child to read it independently? The ease with which children remembered a story from only one reading can be seen in the high scores on the bedtime story which suggests that one reading might be enough. Furthermore, although parental responses have been uniformly positive, we know the extent to which they read our guidelines for using the books varied. In the initial followup of a larger group of 67 families from the Wave I study, 78% of the parents reported reading the guidelines, but of that group only 46% read them carefully. Twenty-two percent said they did not read the guidelines at all. If we had found some way of assuring or encouraging all the parents to read the guidelines, the outcomes for the children might have been even greater.

Theoretical implications. Although not the focus of the intervention studies, several questions of a theoretical nature were raised. The hierarchical model of early reading provided a basis for construction of materials and techniques. Their appeal and success is explained by the Level 1 focus on the function of print. That is, recognizing words in a meaningful format provides children with an easy mapping of spoken word to printed word which matches their level of understanding of how to read. Nevertheless, this has not explained the apparent generalizability to other early reading skills. Why and how does a recitation of meaning-laden print foster an attention to the sound-symbol relationship of print? Does it occur because

learning to recognize a set of printed words and to name letters leads children to hear the sound of letter names in words? Did these books facilitate the move into Level 2 because they repeated easy-to-remember words so that children began to associate the presence of particular letters with particular phonemes? Or is there an over-arching conceptual shift, a change in children's approach to learning about complex information, that is fostered by the use of easy-to-read materials? The Wave I experimental group not only could read old and new stories more accurately, but made a greater improvement on consonant-sound identification, spelling, and word recognition during the second semester of kindergarten. While this suggests that allowing the child to behave like a reader facilitates the acquisition of beginning phonetic awareness of words, it does not explain why. These questions need to be examined in future work by analyzing changes in children's understanding of print meaning in conjunction with changes in their phonological awareness.

A second question of theoretical importance concerns the development of the concept of a word. Morris (1981) suggests that a conceptual knowledge of "wordness" underlies both spelling and reading. To what extent does story reading, rereading and reciting help in the development of the concept of the word? Possibly, sign, label, and simple story reading help the child to understand how spoken story words corresponds to printed words.

Our research suggests but does not prove that reading in context is very important.

A third question regards the role of parents in introducing reading to their children. We have survey evidence that rural and lower SES parents do not provide enough support for reading activity; we have anecdotal evidence from our two examples from the Wave 1 control group that the parents were either uninterested or unsure about how to introduce their child to print. Does a child's enthusiasm for easy-to-read books lead the parent to initiate print-related interactions with the child? Or does a child, given materials that require little help from parents, keep plying the parent with questions? Our self-report data from parents whose children used the little books is unclear on this point, but it could be objectively documented. We need to learn whether these informal parent/child reading-related interactions are important because the parents are encouraged to be more involved or because the children, finding pleasure in reading or reciting stories, initiate questions to parents about print.

In conclusion, over the several years as we have been studying the development of print knowledge with preschool children, we have learned that there are more and less effective orders of early informal reading instruction. We have shown that our minimal intervention with the little books can have a significant impact, particularly for children who are entering

school less well-prepared for reading instruction. We believe that one critical factor in their success may be parental involvement which is fostered by the child's interest in reading. The use of easy-to-read books exemplifies one way of encouraging positive parent/child interaction regarding printed words. However, we still lack a satisfactory explanation of how children derive meaning from print and whether children's search for the meaning in printed information causes or merely coincides with their development of phonological awareness.

Instructional implications. As a practicing school psychologist, McCormick has been encouraged about the potential applicability of the little books with children at the first level of early reading. The appeal and usefulness of the books have been apparent to her since she first used them with a group of preschoolers.

Many times as a school psychologist McCormick was asked to test a child who was not progressing satisfactorily in kindergarten or first grade on beginning reading skills. The working assumptions of the teachers who made the referrals were that if a child did not acquire letter-sound correspondences or blending skills at the prescribed rate, then the child was immature, "slow," or had a learning disability. The recent theoretical work by Mason and others has suggested a more appropriate interpretation for viewing a slow start in reading. This view offers a breakthrough for teachers and school

psychologists not only in how to describe the child but also what to do about the slow progress. The model has suggested that children progress first through a context-dependent level of acquaintance with print before moving into the second level in which they begin to apply phonetic analysis. A personal observation by McCormick of kindergarten and first grade instruction in rural areas of the midwest suggests that most school instruction begins with a primary emphasis on this second level of development and makes little provision for those children not conceptually prepared to integrate this beginning phonetic analysis training into their understanding of and acquaintance with printed words. The activities which focus upon letter-sound correspondences often ignore children's need for conceptual understanding of the meaningfulness of print. A hierarchical explanation of early reading development can encourage teachers to distinguish between those children conceptually prepared to begin with letter-sound correspondences and those needing a program in which meaningfulness of print is emphasized before moving on to letter-sound correspondences. Our work with the little books gives an example of the type of activity appropriate for the child at the first level of early reading.

Closely related to this issue is the possibility of using these materials as a focus for parents of children getting off to a slow start in reading. Our work has shown that as a group

rural and lower SES children are not entering school with the letter naming and word and book reading knowledge of urban and higher SES groups, and that the parents of these children are not as effectively involved with encouraging their child's interest in print as are higher SES parents. Furthermore, our questionnaire responses indicated that most of these parents are willing to help if given clear suggestions. One of the appealing features of the little books is the involvement of both children and parents in activity which is easy for everyone to carry out. The little books appear to provide a successful initiation into reading activity and to help parents focus on meaningful aspects of reading when working with young children.

The conceptual framework for our work is readily accepted by the teachers and administrators in the small rural school districts in which McCormick worked. Many believe in a developmental model of learning, although they also espouse the notion of a maturational readiness for reading. Working with them has meant explaining that while the maturational component may be relevant to being able to sit still and listen to and carry out teacher directions, it does not address adequately the conceptual demands of reading tasks. Teachers and administrators need to learn that a low score on a school readiness test need not be interpreted to mean that a child is "not ready" for any instruction in reading. It has been important to explain that even if the decision is made to delay formal instruction, the

parent or preschool teacher should be given appropriate informal teaching strategies for the child, and the little books can be viewed as a prototype of the type of suggestions helpful in such cases. The little books can illustrate to parents that readiness for school does not just happen with increasing age. These books show the parent how the child's interest in reading can be fostered and offer an easy way to interact with the child regarding print.

The importance of our work also has application to other beginning reading instruction. In McCormick's work with Educable Mentally Handicapped (EMH) students, the classes often focused on letter-sound correspondence drills or sight word recognition drills. The letter-sound drills may be inappropriate if the children can be shown to be at the first level of early reading development, and even the sight word approach may be poor because it often focuses on words not personally meaningful to the children, such as color words, number words and words that do not match a familiar referent (e.g., the, you, is, here, that). Teachers can be coached to allow these children more time with Level 1 activities such as recognizing words in the meaningful context of signs and labels, constructing spoken-word-to-print contexts, and reciting easy-to-read little books before moving into phonetic analysis and sight word recognition.

Thus, an understanding of the theoretical justification for meaning-related materials is an important addition to teachers'

and school psychologists' knowledge of the acquisition of beginning reading skills. And, most importantly, for these school personnel who need daily to make decisions about their hard-to-teach-children, the notion of levels of early reading development offers useful insights for the construction of appropriate reading materials and about how to begin teaching children who enter school with skills and conceptualizations characteristic of our Level 1 reader.

References

Biemiller, A. (1970). The development of the use of graphic and contextual information as children learn to read. Reading Research Quarterly, 6, 75-96.

Bissex, G. (1980). GYNS AT WRK: A child learns to write and read. Cambridge, MA: Harvard University Press.

Bond, G. L., & Dykstra, R. (1967). Coordinating center for first grade reading instruction programs (Final report, HEW Project No. X-001). Minneapolis: University of Minnesota.

Calfee, R., & Piontkowski, D. (1981). The reading diary: Acquisition of decoding. Reading Research Quarterly, 16, 346-373.

Chomsky, C. (1977). Approaching reading through invented spelling. In L. Resnick & P. Weaver (Eds.), Theory and practice of early reading. Hillsdale, NJ: Erlbaum.

Clark, M. (1976). Young fluent readers: What can they teach us. London: Heinemann.

Clay, M. (1972). Reading, the patterning of complex behavior. Auckland, New Zealand: Heinemann.

Coltheart, M. (1979). When can children learn to read--and when should they be taught? In T. Waller & G. MacKinnon (Eds.), Reading research: Advances in theory and practice (Vol. 1). New York: Academic Press.

Dennis, W. (1941). Infant development under conditions of restricted practice and of minimal social stimulation. Genetic Psychology Monographs, 23, 143-189.

Ferreiro, E., & Teberosky, A. (1982). Literacy before schooling. London: Heinemann.

Gesell, A., & Thompson, H. (1929). Learning and growth in identical twin infants. Genetic Psychology Monographs, 24, 3-121.

Heber, R. (1978). Sociocultural mental retardation: A longitudinal study. In D. Forgays (Ed.), Primary prevention of psychopathology: Vol. 2, Environmental influences. Hanover, NH: University Press of New England.

Hunt, J. (1982). Toward equalizing the developmental opportunities of infants and preschool children: The 1982 Kurt Lewin Address. Champaign: University of Illinois.

Hunt, J. (1983). The role of early experience in the development of intelligence and personality. Champaign: University of Illinois.

Lowell, R. E. (1971). Reading readiness factors as predictors of first grade reading. Journal of Learning Disabilities, 4, 563-567.

Mason, J. (1976). Overgeneralization in learning to read. Journal of Reading Behavior, 8, 173-182.

Mason, J. (1980). When do children begin to read: An exploration of four year old children's letter and word reading competencies. Reading Research Quarterly, 15, 203-227.

Mason, J., & Au, K. (1981). Learning social context characteristics in prereading lessons. In J. Flood (Ed.), Understanding reading comprehension. Newark, DE: International Reading Association.

Mason, J., & McCormick, C. (1979). Testing the development of reading and linguistic awareness (Tech. Rep. No. 126). Urbana: University of Illinois, Center for the Study of Reading. (ERIC Document Reproduction Service No. ED 170 735)

Mason, J., & McCormick, C. (1981). An investigation of prereading instruction from a developmental perspective: Foundations for literacy (Tech. Rep. No. 224). Urbana: University of Illinois, Center for the Study of Reading. (ERIC Document Reproduction Service No. ED 212 988)

Mason, J., & McCormick, C. (1983). Intervention procedures for increasing preschool children's interest in and knowledge about reading. Paper presented at the meeting of the American Educational Research Association, Montreal.

Mason, J., McCormick, C., & Bhavnagri, N. (1983). How are you going to help me learn? Issues in providing reading instruction to preschool children. Paper presented at the meeting of the Society for Research in Child Development, Detroit.

McCormick, C., & Mason, J. (1981). What happens to kindergarten children's knowledge about reading after a summer vacation? Reading Teacher, 35, 164-172.

McGraw, A. (1935). Growth: A study of Johnny and Jimmy. New York: Appleton-Century.

Morphett, V., & Washburne, C. (1931). When should children begin to read? Elementary School Journal, 31, 495-503.

Morris, D. (1981). Concept of word: A developmental phenomenon in the beginning reading and writing processes. Language Arts, 58, 659-668.

Muehl, S., & DiNello, M. C. (1976). Early first-grade skills related to subsequent reading performance: A seven year followup study. Journal of Reading Behavior, 8, 67-81.

Paul, R. (1976). Invented spelling in kindergarten. Young Children, 31, 195-200.

Read, C. (1971). Preschool children's knowledge of English phonology. Harvard Educational Review, 41, 1-34.

Silvaroli, N. J. (1965). Factors in predicting children's success in first grade reading. In J. A. Figurel (Ed.), International Reading Association Conference Proceedings, 10, 296-298.

Soderbergh, R. (1977). Reading in early childhood: A linguistic study of a preschool child's gradual acquisition of reading ability. Washington, DC: Georgetown University Press.

Footnotes

[1]The single experimental child in a low reading group during first grade was a little girl who had the lowest standard score (85) on the PPVT for the experimental group. Her match (on PPVT) in the control group was ranked below the low reading group in first grade and the teacher added the comment that this child was not yet reading.

[2]For example, Marie Clay's Caption Books (1972) use complete sentences, a matching illustration and often a repetitive theme. A second example, Bill Martin's Instant Readers, use a much longer text (with rhyming or sentence pattern repetitions) and have more complex illustrations and varying print formats. Our books, as can be noted in Appendix A, have a very brief text with only several words or a phrase per page. The illustrations are likewise simple and uncluttered. At this time our books are not published. For our research, we xeroxed copies as needed.

Table 1

Parents' Estimates of Support for Reading (Percent in Each Response Category)

Support for Reading	Public-aid Parental Response (N = 19)			Mid-level Parental Response (N = 15)			Professional Parental Response (N = 38)		
	very often	occasionally	seldom	very often	occasionally	seldom	very often	occasionally	seldom
Hears Story Records	0	16	84	13	27	60	26	50	24
Watches Sesame Street	37	47	16	40	47	13	79	16	5
Discusses Sesame Street	11	47	41	7	80	13	42	42	16
Asks for Books Reread	53	26	21	67	27	7	68	24	8
Asks to be Read To	68	32	0	80	20	0	84	16	0
	6x week	4x week	2x week	6x week	4x week	2x week	6x week	4x week	2x week
Outings with Parent	26	21	53	47	53	0	37	52	11
	each week	1,2x month	seldom	each week	1,2x month	seldom	each week	1,2x month	seldom
Goes to Library	5	26	68	7	53	40	8	26	66
	2 hr week	1 hr week	1/2 hr week	2 hr week	1 hr week	1/2 hr week	2 hr week	1 hr week	1/2 hr week
Time Read to	42	47	11	40	27	33	45	42	13
	several	1	none	several	1	none	several	1	none
# Alphabet Books	53	5	42	67	20	13	68	29	3

Table 2

Preschool Children's Letter Knowledge

Parent Description	University Professionals			Students, Secretaries	Farmers, Factory Workers		Public Aid Recipients
Group	1	2	3	4	5	6	7
Sample Size	38	25	40	15	66	53	19
Mean Age in months	53.2	51.5	50.5	52.0	49.0	63.0	67.0
Upper-case letter naming	94%	88%	78%	71%	28%	53%	58%
Lower-case letter naming	77%	---	---	44%	14%	34%	38%
Identifying consonant-sounds	20%	24%	30%	07%	03%	28%	09%

Table 3

Multiple Regression Results, Wave I Children (N = 45)

Variable	Unstandardized beta	F value	Sig.	R^2	R^2 Change
		Word Knowledge			
Sex	5.49	1.60	.21	.09	.09
PPVT	.65	8.36	.01	.22	.13
Treatment	7.73	3.64	.06	.28	.06
		Letter Knowledge			
Sex	.16	.08	.78	.02	.02
PPVT	.10	11.62	.00	.23	.21
Treatment	.16	.09	.77	.23	.00
		Spelling Knowledge			
Sex	.65	.10	.76	.03	.03
PPVT	.31	8.13	.01	.16	.13
Treatment	3.98	4.07	.05	.24	.07
		Story Knowledge			
Sex	3.82	1.73	.20	.03	.03
PPVT	.17	1.22	.28	.04	.01
Treatment	11.95	19.41	.00	.35	.30
		Whole Test			
Sex	9.80	1.60	.21	.08	.08
PPVT	1.23	9.36	.00	.20	.12
Treatment	23.82	10.82	.00	.36	.16

Table 4

Wave 1 Test Descriptions by Treatment, November Testing

Variable	Possible Score	Experimental (N=23) Mean	Experimental (N=23) Standard Deviation	Control (N=22) Mean	Control (N=22) Standard Deviation
1. Age in months		65.09	3.12	64.91	3.96
2. PPVT		106.61	10.81	108.91	8.92
3. Sign & Label Identification	24	18.41	3.22	16.76	3.21
4. Sign & Label Reading	24	4.86	4.81	3.52	3.54
5. Letter Naming	10	7.14	3.31	5.81	3.78
6. Spelling	24	2.05	3.46	0.43	1.07
7. Printing	3	1.95	1.00	2.10	0.77
8. Word Reading	20	0.68	1.99	0.10	0.30
9. Consonant Identification	32	0.64	2.98	0.29	1.31
10. Town Story	11	2.55	1.99	2.24	1.79
11. Stop Story	13	7.45	4.01	1.76	1.84
12. Lunch Story	11	3.82	3.71	1.67	1.46

Table 5

Wave I Test Descriptions by Treatment, May Testing

Variable	Possible Score	Experimental (N=23) Mean	Experimental (N=23) Deviation	Control (N=22) Mean	Control (N=22) Deviation
1. Sign & Label Identification	24	19.13	2.87	18.82	2.15
2. Sign & Label Reading	24	7.91	5.66	5.55	3.96
3. Letter Naming	10	9.43	1.83	9.36	1.40
4. Spelling (3-letter words)	12	5.74	4.18	3.91	4.06
5. Spelling (4-letter words)	12	3.52	3.75	2.36	2.98
6. Printing	3	2.35	0.88	2.41	0.85
7. Word Reading	20	2.83	5.42	1.00	1.80
8. Consonant Identification	32	7.22	10.94	5.91	9.47
9. Stop Story	13	10.35	2.59	6.00	3.16
10. Farm Story	25	10.70	9.19	4.09	3.82
11. Bed Story	19	15.65	2.14	15.45	2.42
12. WRDKNWL (2+7+8)	76	17.96	18.54	12.45	11.70
13. LTRKNWL (3+6)	13	11.78	2.13	11.77	1.90
14. SPLKNWL (4+5)	24	9.26	7.74	6.27	6.72
15. STYKNWL (9+10+11)	57	36.70	12.23	25.55	5.30
16. WHLTEST (all)	170	75.70	33.67	56.05	20.93

Table 6

Multiple Regression Results, Wave 2 Children (N=53)

Total Story Score

Variable	F Value	Sig.	R^2	R^2 Change
Sex	3.76	.058	.07	.07
Age	2.41	.100	.09	.02
PPVT-R	2.78	.050	.15	.06
Treatment	6.30	.000	.34	.19

Table 7

Wave 2 Test Descriptions and Group Comparison, October Testing

Variable	Control (N=26) $\bar{x}$	s.d.	Experimental (N=27) $\bar{x}$	s.d.	$\bar{x}$ diff.	Sig. level
PPVT-R	100.04	10.92	100.07	9.14		
Age in months	65.85	4.99	63.39	3.20		
Uppercase letters	5.86	4.13	4.71	3.99		
Spelling	3.93	6.16	2.86	5.50		
Common word identification	.50	.96	.43	.88		
Stop story	3.25	3.18	7.73	4.44	-4.20	.000
Ghost story	1.88	2.60	4.03	3.07	-2.74	.009
Apple story	3.74	2.68	4.80	2.87	-1.40	.169
Story score (all 3 stories)	8.88	6.92	16.57	7.29	-3.93	.001

Appendix A

Examples of text from "Little Books" (copyright applied for, 1983)

Stop
stop car
stop bus
stop truck
stop, stop, stop
stop for the cat

Apples
red apples
yellow apples
green apples
blue apples
red apples, mmm
yellow apples, mmm
green apples, mmm
blue apples, yuk

Ghosts
a happy ghost
a sad ghost
a big ghost
a little ghost
a scary ghost
boo!

Time for Bed
brush your teeth
read a story
get a hug
climb in bed
nighty-night, sleep tight

Funny Farm Family
one baby chick, peep
two baby chicks, peep
three baby chicks, peep
four baby chicks, peep
five baby chicks, peep
a-a-and
one big baby duck, quack

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