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**ABSTRACT**

Two contrasting kindergarten reading programs (book-focused and letter-focused) were chosen for a study that evaluated the ability of the Early Reading Test to probe children's knowledge of stories as well as letters, sounds, and words. The test also evaluated the kinds of strategies children use to attempt reading tasks and, through interview questions, determined children's awareness about reading and how they are learning to read. Although results indicated small between-school differences, the large within-school differences suggested that the test may be a useful diagnostic instrument for teachers. (Included are (1) a description of the following reading tasks: upper-case letter naming and printing, spelling, reading sign and label words, reading pseudowords, and common book words, reading pictured labels, reading simple stories, and telling and retelling stories; (2) a discussion of interview questions used to assess children's awareness of how to read; and (3) case studies of the out-of-school literacy experiences of two children from each of the contrasting instructional settings.) (HOD)

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CENTER FOR THE STUDY OF READING

Technical Report No. 368

TESTING KINDERGARTEN CHILDREN'S  
KNOWLEDGE ABOUT READING

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## Abstract

Most tests of young children's reading knowledge have focused on recognition of letters and words and on phonemic awareness or an ability to identify and segment words into letter sounds. The test described here probes children's knowledge of stories as well as letters, sounds, and words. It also evaluates the kinds of strategies children are using to attempt reading tasks. Finally, through interview questions, it determines children's awareness about reading and how they are learning to read. The test was tried out in two schools containing contrasting kindergarten reading programs. Although small between-school differences were found, the large within-school differences suggest that the test may be a useful diagnostic instrument for teachers.

## Testing Kindergarten Children's Knowledge About Reading

In the last six years we have seen a new focus on early literacy and kindergarten reading instruction. At this point the research is primarily descriptive. There are case studies of individual children (Bissex, 1980; Taylor, 1983; Dyson, 1984; Soderbergh, 1977; Sulzby, 1983). There are studies on what preschool children know about how to read and what their strategies are for trying to read (Clay, 1979; Ehri, 1979; Ferreiro & Teberosky, 1982; Hiebert, 1981; Mason, 1977, 1980; Mason, McCormick, & Bhavnagri, 1986; McCormick & Mason, 1986; Teale & Sulzby, 1986; Yaden & Templeton, in press). Based on these studies that show how children begin learning to read at home, we believe that their knowledge about reading before knowing how and perceptions about learning to read can be assessed.

Two aspects of kindergarten reading are presented here: children's ability to read and spell three- and four-letter words and their approaches to identifying words and comprehending stories. The set of tasks and interview questions provide a window into kindergarten children's understanding of reading.

In 1974 we directed a preschool program for 40 children and, with the help of the preschool teachers, developed an experimental early-reading program. Reading materials were constructed for the classroom, the children were observed in the playrooms, their parents filled out a questionnaire at the

beginning and end of the school year, and we tried alternative techniques for measuring their progress (Mason, 1980). Those experiences helped us realize that young children begin learning about how to read at a much earlier age than was described in the literature. One reason for the apparent inconsistency is that traditional reading readiness tasks did not adequately capture what young children knew about print.

#### Early Reading Test Approach

In our attempt to use measures that would reveal the greater extent of children's knowledge about print, a number of tasks were developed and tried out with average-ability kindergarten children (Mason & McCormick, 1979; McCormick & Mason, 1981; Surber & Mason, 1977). Our testing approach has the following features: individual administration of test items; probes of children's knowledge about letters, words, and stories; time shift examination of children's word and story recognition strategies; and time shift analyses of children's reading awareness.

#### Individual Administration

Individually administered production tasks are used for the Early Reading Test (ERT) because children understand them better than activities that involve selecting from alternative choices and also because production tasks elicit more interpretable responses. We ask children to name letters or words, write and spell, read a book, and talk about their reading. Individually

administered tasks enable the examiner to record both verbal and nonverbal responses, as well as to judge children's thinking and process of solving tasks.

#### Probing Children's Knowledge of Reading

We select items that vary in difficulty and probe children's knowledge with the variety of items. We arrange items with the easier ones presented first, omitting the harder ones if there is a high error rate. For example, we ask children to name upper-case letters before lower-case letters. We check them on consonant-vowel-consonant (CVC) words before trying words with harder patterns (CVCe, CVCC, CVVC).

We test children's ability to identify words that their parents say they are learning to read, words that their teachers have taught them to read, pseudowords that display regular patterns, and words that we had taught them to read. We drew the following conclusions about testing approaches:

1. A test of early word reading needs to include the kinds of words that preschool children try to read as well as those that present regular letter-sound patterns. High-frequency (book) words (e.g., words from the Dolch list or from a basal reader primer) and common words that appear on signs and labels (traffic signs, food and beverage labels) provide information about words children recognize by sight. Words with (c) CVC (C), CVVC, and CVCe patterns determine the extent to which children have begun to intuit regular, one-syllable words.

2. Words can be taught and measured before children know how to read. This can be achieved by (1) asking children to match printed words with their pictures; (2) having words in a sentence context and associating them with their meaning; and (3) giving children word cards to read that follow a regular pattern and then putting the words in a story (where children read only the learned words).

3. Early-reading tasks can measure the extent to which preschool children are constructing appropriate letter-sound rules for recognizing words. We found that they typically figure out consonant sounds before vowels, and short-vowel patterns before other vowel patterns. High intercorrelations among spelling, reading pseudowords, and reading achievement suggest that phonological awareness is measured by asking children to read or spell regularly patterned words and pseudowords.

4. Simple-to-read caption books can be used as testing materials. Printed words in a story or sentence can include a picture or not so as to measure their use of picture-context cues.

5. The development of metacognitive strategies for recognizing and interpreting text information can be measured with interview questions to children about their awareness of inconsistencies we placed in a story, their ability to describe how they are learning to read, and their explanation of how they figure out printed information.

### Probing Changes in Children's Strategies

ERT P items are selected with the intention that errors would occur and could then be analyzed. The presence of systematic errors suggests what strategies children use for recognizing and remembering words and for figuring out words in stories and help to determine what children understand about how written language is structured. Comparison of words spelled and read determine whether they use the same strategies with both tasks. Comparison of sign-word, real-word, and pseudoword reading determines whether they are willing or able to apply their strategies to words they have never seen before. Reading in and out of context and with misleading context determines what strategies they try to employ.

Children's approaches to identifying words, for example, can be analyzed through the kinds of word recognition and spelling errors they make. Following analyses by Read (1971) of spelling errors and Mason (1976) of word-reading errors, spelling and word-reading errors uncover a developmental progression in word recognition that is relatively unaffected by instruction. Children use similar strategies to read and to spell isolated words, but over time changes in their approaches to the two tasks indicate their progress.

### Awareness of the Reading Process

Questions to children about how they are learning to read, how they figure out particular words, and what part of the text

they were using to read help to uncover their knowledge about how they are learning to read. For example, after trying to read a printed label, whether or not they are correct, they are asked how they knew what it said or how they figured it out. They explain how they might teach a younger child to read and draw pictures that describe what younger children need to do to learn to read. Particularly enlightening are changes in children's explanations about how they learned, who helped them learn to read, and how they learned over their first two years of instruction.

#### Using the ERT to Study Two Kindergarten Programs

Children's knowledge about how to recognize words (Ferreiro & Teberosky, 1982), spell (Ehri, 1984; Hiebert, 1984), and write (Sulzby, 1983) have been studied in conjunction with home experiences in reading (Taylor, 1983; Heath, 1983; Bissex, 1980) and preschool reading experiences (Mason, 1980; Mason, McCormick, & Bhavnagri, 1986). The following investigation concerns the tie to kindergarten reading experiences, relying on schools with contrasting reading programs in order to pull out common elements in kindergarten children's acquisition.

#### Method

Children in this study attended kindergarten in the 1983-1984 school year in either a rural or a city school, a total of 140 students from four classrooms, two in each school. Tests and interviews were given to all the children in the two schools or

to 9 to 11 average achieving children selected from each classroom. Observation of home behavior during the summer following kindergarten was carried out with four children, a boy and girl from each school.

Pine School, in a rural area, used a commercial letter-identification program followed by a basal program with teacher-directed, whole-group instruction of letters and letter-sounds. During the last two months, instruction was given in groups based on ability, where ability was determined by performance in the letter program. The children were usually expected to work silently at their table after receiving instruction or directions for independent work.

Water School, in an urban setting, used an individualized reading approach. The teachers worked with children one at a time listening to them read simple books usually chosen by the teacher. They were encouraged to read to themselves and to each other. Because it was a whole-language approach to reading, letter and phonics instruction was occasionally provided, but was secondary to book and language experience story reading.

Pine School's commercial alphabet program was Alpha Time, followed by MacMillan basal readers and Houghton Mifflin's reading readiness book. All the children completed Alpha Time and the readiness book. However, only the higher two groups read stories from the basal. The middle groups completed both preprimers and the high groups completed preprimers and the

primer. The lowest groups were given more letter and phonics work in place of the preprimers.

Children attending Water School read from books published by Modern Curriculum Press (each book contained one story of 6 to 12 pages in length), prereading skills books from Economy, and Houghton Mifflin's reading readiness books. All of the children used the Economy and Houghton Mifflin materials. In addition to the language experience stories, about one-third of the children read 10 to 15 of the Curriculum Press books, one-third read 20, and one-third read 40 or more books. The teachers also read stories to them nearly every day.

In Pine School there were few breaks for free play, story reading, art, or music, and there were no field trips. The classes were half-day, with identical programs for morning and afternoon groups. Reading was taught principally within the confines of the first hour and a half of instruction. Teachers shifted activities frequently so that most of the children usually appeared to be on task. Children began learning through whole-class sessions with oral drill and practice, written multiple choice, and copying exercises, followed by reading group participation and worksheets at their tables. Stories were made available for children to hear about three times a week. These were usually read-along books or books brought in by the children.

Water School had a flexible schedule that encompassed reading, math, and a free play, which took the first two to three hours of the day. Many school days were frequently interrupted by field trips, assemblies, and other special events. Instruction was often conducted by asking children to read to the teacher individually. In the meantime the other children read to themselves or to another child, did other work, or played. Language experience charts were used almost daily with children composing a story and then reading it together several times. While reading the children were also asked to pick out words or talk about sounds, letters, and meanings. Questions were encouraged and the children were expected not only to listen but to participate.

### Results

This study compares the kindergartner children in the two schools (the means for the letter and word reading tasks are in Table 1) and describes four of the children in more detail. Two of the children (Joseph and Donna) attended Pine School and the other two (Sani and Erica) attended Water School. We discuss the following tasks and interviews: letter naming and printing; spelling CVC, CVCe, and CVCC words; reading sign and label words; reading CVC pseudowords; reading common three-letter words; reading predictable and unpredictable labels; story reading, telling stories; and awareness of how to read.

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Upper-case letter naming and printing. Most of the children entered kindergarten knowing how to name upper-case letters and to print part of their names, although most used only capital letters, and only a few used upper- and lower-case letters appropriately. Figure 1 provides examples of children printing their first names at the beginning and the end of kindergarten. Note that at year's end fewer upper case letters are formed and reversed letters are omitted.

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Spelling. A large number of entering kindergarten children could not use letters to spell words (84% in Pine, and 28% in Water School scored zero in the fall). At the end of the year, only 5% of the children received a score of zero. Children in both schools had made large gains in spelling. September responses typically consisted of 2 to 8 letters, randomly selected and placed in a line. A few children chose one or two initial letters. At the end of the year most children were appropriately correctly choosing and placing most of the consonants in the words.

Reading sign and label words. Children in both schools were similarly able to name labeled pictures, particularly STOP and EXIT, and they knew about a third of the words without the picture context. Large gains were made from out-of-context label reading by both groups.

Reading pseudowords. In the fall most children could not read any pseudowords (96% of the Pine School and 33% of Water School students knew no pseudowords as the year began). At the end of the year the number of zero scores dropped to 35% at Pine School and 4% at Water School. There were large overall gains in both schools. Typically, in the fall children made real word guesses that were unrelated to the pseudowords but in the spring they were relying on the first or first two letters to guess the word (e.g., saying "fat" for fam and "grum" for gat).

Common book words. Children knew few words in the fall, with 97% of the Pine School students and 41% of Water School students performing at the zero level. At the end of the school year, the percentage of zero scores dropped to 15 and 9 for the two schools respectively; 6% of Pine and 22% of Water children read 10, 11, or all 12 words. Both schools made sizeable gains during the year. Some words were recognized by sight in the spring and some were figured out using the letter information. Although pseudoword scores appear higher, they were scored letter-by-letter while book words were scored by the word as a whole.

Reading pictured labels. Sixty-six children labeled pictures that were either predictable (under a picture of a toy train was the word train) or unpredictable (under a picture of a car was the word wheels). We asked, "Show me where there is something to read . . . What does it say? . . . How do you know?" This task, given at the end of the kindergarten year by Peterman (Peterman & Mason, 1984) followed closely one devised by Ferreiro and Teberosky (1982).

Only one child ignored the print, pointing to the picture and naming it when we asked, "Show me . . ." The rest of the children knew the information was in print. But did they use the print to identify the words? Twenty-three percent talked about the picture rather than graphics when they were asked to explain how they knew what the word said. They misread all the unpredictable labels, telling us, for example, that the word wheel under the picture of a car was car. Twenty-eight percent said they knew the words because of the letters or hesitated when they came to the unpredictable label, but still gave us the name of the picture for the unpredictable label. Thirty-six percent tried to decode and to integrate one with the other (e.g., by calling the car labeled wheel, "wagon," and by thinking of two semantically appropriate words for the two-word labels wood blocks such as "building blocks"). These children figured out some of the unpredictable labels. Only one child was able to read all the labels correctly and without hesitation.

Assuming that these kindergarten children are fairly representative of most kindergarteners who are given readiness or reading instruction, we can say that whereas they are aware that print carries a message, they are more likely to look to the picture information for the message than to the print. Their error in relying on picture information in kindergarten is understandable because the printed information that they usually read is in predictable, pictured contexts. Nevertheless, children's ability to read unpredictable text was related to other reading and listening abilities because more able early readers were less likely to be fooled by the misleading pictures.

Reading simple stories. A task given at the beginning of kindergarten and repeated at the end of the school year allowed us to study children's approaches to reading a book with pictures and captions (McCormick & Mason, 1986). To measure children's attempts to read, we handed them a book, told them what it was about, and asked them to read it. If they objected, saying that they could not read, we said to "pretend" to read it. In this way all the children participated. They labeled the pictures, constructed a story about the pictures, or tried to read the words. Since at the beginning of the kindergarten year few children were actually reading, we coded their remarks by the extent to which they used or elaborated on the picture information. Later, we counted how many words they read and asked them how they figured out some words.

In our testing at the beginning of kindergarten, we noticed that most of the children simply labeled pictures, ignoring the story possibilities; some told an elaborate story from the pictures; and a few were able to read. For example, for a text that read "Stop car; stop truck; stop bus; stop, step, stop; stop for the cat," one child simply labeled each page, saying, "Cat; car; truck; bus; car and no-monkey-car and bike; and truck, cat, car, bus." Another child elaborated, saying:

The car is going down the road and the sign said stop and he stopped. Then a truck was going down the road and the sign said stop so he stopped. A school bus was going down the road. Another sign said stop so the school bus stopped. And the semi and the bike and the car and the kitten were going down the road, and the sign said stop so they stopped. And then the bus, the car, and the kitten were going down the road, and the sign said stop and they stopped.

At the end of the year when we again asked them to read the same stories, a few children simply labeled the pictures or made up stories, but most of them read part or all of the stories. After they read or tried to read we asked several questions. One was, "Where does it say stop?" Some pointed to the pictured sign, not acknowledging any other source of print, and some told us the information was in the print below the picture. With respect to the last page of the story, whether or not they read it correctly, we asked, "How did you know that it said that?" and

then, "What does it say here (pointing to the words the cat)?" These children gave us varying reasons for knowing how they could read the print ("I just knew the words;" "I saw the word before;" "It matches with the sign;" "I sounded it out;" "It matches with the sign;" "I know how to read").

From among the children who had ignored the print, a few changed their method of attending to the story as we questioned them. They looked more carefully at the words that they had just ignored and, to our surprise, began to read the words correctly. They even continued reading the print with the next story. We hope to learn later why a more primitive strategy is sometimes chosen when a more effective one is available to the child.

It appears that children who were elaborators at the beginning of kindergarten are more likely to become readers than those who were picture labelers. Possibly, children who began kindergarten as story elaborators have parents who provide a good grounding for story comprehending by reading to their children and talking to them about stories. We wonder then whether kindergarten children learn to make better use of text context if they are in a kindergarten program that features story-reading. We hope that later analyses will permit us to evaluate children's personal styles and home support separately from their school instruction.

Telling and retelling stories. At the beginning of the school year, children constructed stories from four-picture

sequences. In March they retold a story that their teacher had just read to them. The second task tapped the extent to which they could organize information around a narrative framework. Both tasks measured whether they could describe the intentions of the main character. We looked for specific vocabulary terms (e.g., want, think, need, try) and phrases that explained why an action was performed.

This extends work by Hall, Nagy, and Nottenburg (1981) and Torrance and Olson (1982) who found the construct of intentionality to be related to reading achievement. We found a wide variation in children's use of intentionality using picture sequencing and story recall tasks. When asked to tell the story from four pictures, many children simply labeled pictures and gave no indication that they saw a set of connected events; some tried to tie the picture information together with and or and then; others put intention relationships into their responses. These three kinds of responses describe, we suspect, three levels of story understanding.

For example, one of the picture sets showed (1) a little girl waving at an ice cream truck, (2) being given an ice cream cone, (3) eating it, and (4) throwing something in the trash box. One child told the story, "Getting ice cream, eating it, throwing the cone away." Another using the and relationship said, "She's giving her ice cream and she's eating it. And she's going to throw it away." And a child who relied on intention said, "One

time a little girl was trying to get a ice cream cone and some lady gave it to her. Then she walked and when she was done she threwed it in the garbage can."

The other task required children to recall a story the teacher had just read to them. Some children never mentioned the main character's intention or the problem in the story. Incidents were reported as unrelated events. Others linked story events with the problem but not the intention. Only a few were able without probing to explain why the little girl in the story wanted to visit someone and why there would be a problem if she did. Interestingly, not mentioning this information was not due to lack of attention to the information, because when probed about half of the children could tell us both the intention and problem.

These tasks show promise of being applicable for testing children's reading comprehension. We expect it will be a predictor of later reading ability.

Awareness of how to read. To assess children's awareness of how to read, we constructed three interview questions. One question is, "How are you learning to read [at home]?" and another is, "How is your teacher helping you learn to read?" We scored their use of metacognitive terms (e.g., think, remember, learn), their use of metalinguistic terms (e.g., write, spell, sound out), and the number of different ideas that were related to learning to read. They reported ideas such as, "People are

helping me;" "I try to read books at home;" "We start by the sounds of stuff;" or "She don't teach me to read. We just say the word and fill in the lines." They used more than twice as many metalinguistic terms as metacognitive terms ( $M = 1.7$  vs.  $.6$ ). We expect that metalinguistic terms, which are needed to describe the reading act, will be related to later reading ability.

Another question which gave less verbal children an opportunity to demonstrate their reading awareness was, "How would you help this stuffed animal or doll to read?" Most children pretended the animal was a child and showed us how they would "teach" it. In the process they either modeled a teacher or a parent, providing indirect evidence of how they perceived reading and reading instruction. For example, one child picked up a book, read to the animal, then placed a book in front of the animal and said, "This says a, b, . . . you say it now," modeling the teacher. This child's responses for learning at home was, "My mommy reads it again and again and then she tells me to read it."

We also asked children to write down or picture three ideas for next year's kindergarten children to help them learn to read, then to explain what they drew or wrote. Most of the children (90%) were able to describe at least one way for kindergarten children to learn. Typical advice was, "Listen to your teacher;" "Sound out words;" and "Have your mom read to you." Children varied in their use of metacognitive and metalinguistic terms,

again using more metalinguistic than metacognitive terms. Read and listen were common terms. Learning the alphabet, reading books, and having mothers help them were frequent responses.

Responses to the awareness questions and tasks reveal that most kindergarten children are able to depict how they are learning to read. They point out letter and letter-sound learning, word learning, and book reading; and they remark on the importance of listening to a teacher and having a helpful mother. It remains to be determined whether differences in the maturity of their remarks are related to their later reading ability.

#### Case Studies

Four children, two each from the contrasting instructional settings, were studied in depth through the summer to ascertain their out-of-school literacy experiences and the support provided by their parents. There is no doubt that the children had made reading progress in school. How they interpreted their school instruction within their home environment becomes clearer from these vignettes.

Joseph. Joseph, a very popular child at Pine School is beginning to use letter-sound strategies for consonants but not for vowels. He seldom relies on context clues so his comprehension may be limited. His awareness of how to read appears not to be centered around word identification. For example, he told us the teacher helps him learn "by spelling the words for us, helping us to learn letters." His response to

learning at home, however, reflects a different approach, "My cousin, he's in first grade, helps me read. He listens to me try to read and tells me words."

The father works for the town repairing streets and mother is a homemaker. Neither parent studied beyond high school. There are two children, Joseph and a younger brother. Joseph likes to play outside with his friends. His mother says she can trust him, he is very responsible, a pleasure, easy to manage, and a leader. She commented that Joseph does not like to take time out from playing outside to do any reading, but he does have a favorite read-along record that he has memorized and reads to his younger brother in the evening. He spends little time watching Sesame Street or Saturday morning cartoons during the summer months.

The teacher reports that he listens and is a good learner. He volunteers during lessons and is well liked by classmates. He was ranked 14th in a class of 20. He told us, "Reading is easy for me because I have to sound out the letters. It's easy. I'm a good reader."

Donna. Donna is also attending Pine School. Her responses to some of the readiness tasks are similar to those made by Joseph. However, she is less willing to try to read words that she was not taught. Her responses to the awareness task indicated reliance on school materials for reading at home with, "My green book (the school primer) helps me to read (at home).

It has children in it." About learning in school she said, "We learn letters so we can spell. We read names of children in a reader. My book helps me."

Donna's father works as a laborer and her mother is a homemaker who gives piano lessons occasionally. Both parents attended junior college. There are two cousins that come to visit often. All the children in this extended family are younger than Donna. She is very motherly with them and helpful.

Donna is a good student, according to the teacher, and was placed in the highest reading group. She expects her to do well in first grade. She was ranked 6th in a class of 20. Donna said to us, "Reading is easy because it's fun. I am a good reader."

Erica. Erica attends Water school. She was ahead of the other children in developing letter-sound recognition strategies, and continues to progress successfully. She is developing a good balance between comprehension and decoding. The awareness task revealed her unusual ability to express how she is learning to read at home and school. She said:

At home, I read books and play school with my sister; she's 2. I be the teacher. I read. I'm a good writer by sounding out words.

At school, she lets us read in class the books. She lets us read sentences. We put the writing and we read them to ourselves. She lets us sound out words. She tells us to

sound it out. She tells us to look at the picture and that tells us what they are doing and then you can read it.

Erica's mother works for a preschool program during the school year and there is no father at home. Erica is one of five children and has a three-year-old niece living with her as well. Her mother went to junior college, but her father did not finish high school. Her mother watches the children carefully and keeps them working and learning. For example, she noticed that Erica was reversing letters last year so she sent her to an early childhood program in addition to Headstart. She constantly buys workbooks, puzzles, records, and little books for the children. She looks for programs at the library and free movies and lessons at the city park. Erica goes everywhere with her mother during the summer.

The teacher believes Erica will be very successful in school, especially since she knows how to get what she needs to help her learn. For example, she would observe the teacher and wait for a free minute to have the teacher listen to her read. She is also very competitive and makes sure that her friends do not get ahead of her in learning new things. She is ranked 9th in a class of 23. Erica told us, "Reading is easy because I'm learning how to read. I am a good reader."

Sani. Sani also attends Water School. Sani is later than most in his class developing letter-sound recognition strategies; often he ignores context because of his attempts to identify

words. His awareness responses reflect the language experience approach used in his classroom. He told us:

At school she reads to us and we be thinking and we write sentences and after we write our sentences we write our picture and she reads and then she helps us learn.

Sometimes I ask her words. She tells me some of them.

At home Sani said he learned by "practice reading to Mom and Dad. They tell me words I don't know. Somebody reads a book to me the first day and the next day I can read it myself."

Sani's father works as a laborer in a factory, but also writes for a newspaper; his mother babysits. Sani is the youngest of six children. The family stresses academic success. An older child is on the honor role, and the family has sit-down programs for academic work each week. Sani's mother is worried about him because he still does not seem to be very interested in reading. When she tried to teach him earlier this year, he would put his hands over his ears, preferring to play. He responds better to instruction from his father than the mother. They insisted that he sign out books at the library this summer instead of toys. Both parents are reading to Sani, and he is beginning to read little books. He is a very willing helper at home, but is strong willed: "You can't tell him anything, you've got to prove it to him."

The teacher believes that Sani is a bright child but needs encouragement to learn. She's not worried about him, however,

because she expects the family to work with him. She ranked him 18th in a class of 23. Sani said, "Sometimes reading is hard, because I haven't read a lot. Yes, I'm going to be a good reader."

### Discussion

Two contrasting kindergarten reading programs were chosen for this study to examine how early instruction affects children's progress in learning to read as well as their awareness about how to read. The first report suggests that both programs have an equivalent influence on development of letters and words. The average gain made by students on the ERT subtests was about the same for each school, 30% for Pine School and 28% for Water School; however, ceiling effects among some subtests may have curtailed greater gains for some children (see Table 1).

There were also within-school score differences. Few of the subtests showed normally distributed score patterns (U-shaped and negative skews in the spring for Pine School; negative skews in the spring for Water School). This suggests that a larger proportion of low-achieving children in Water School than in Pine School are profiting from the instruction. In a follow-up study these same children will be tested during first grade to examine their achievement.

Another school difference is the pattern of gain score correlations (Table 2). There are moderate correlations in both schools between the word-reading tasks: reading label words

out of context and reading common (book) words were correlated .40 in Pine and .57 in Water School. There are similar correlations between the phoneme identification tasks: spelling and pseudoword reading were correlated .48 in Pine and .52 in Water. However, only Pine School had moderate correlations between the combined word reading and phoneme identification gain scores (Water School with a correlation of .11 and Pine School with a correlation of .60). We hope to explain these differences after the first-grade tests are given.

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Insert Table 2 about here.  
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A third school difference is suggested from the analysis of the four children. The two from Pine School were thought by their parents, the teacher, and themselves to be progressing normally. Yet neither child was involved in many literacy activities during the summer. The boy played with his friends and the girl followed her mother, helping to care for younger children. The Water School children, coming from a more book-oriented school environment and encouraged by their parents, were reading during the summer. Although the boy would rather have been outside playing (like Joseph), he was required to work on academic tasks. The girl appeared to be self-motivated to read and received significant support for literacy activities from her mother.

Implications

The ERT has been successfully extended beyond the measurement of letters, sounds, and words to aspects of reading comprehension. Having children read or pretend to read caption texts and labeled pictures and then tell us where certain words are and how they figured out particular words or phrases reveals the reading strategies they know and what information they use. Having children recall a story they heard divulges large differences in remembering and structuring important information. Interviewing children reveals the language they have available to explain learning to read at school and at home. These are understandable tasks to young children, they are not threatening, and they tap a wide range of responses. Through these approaches, we have secured a maximum amount of information about children's reading knowledge. We expect this will help to explain changes during first grade in word recognition and comprehension and later reading progress.

At this point we are unable to determine whether the kindergarten reading program differences we saw have a long lasting effect. The data indicate that most of the children made comparable progress in reading whether they received book-focused or letter-focused instruction. Still to be determined is whether there will be differing patterns of learning and reading strategy or interest in reading that stem from these dissimilar kindergarten reading programs.

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Table 1

Percent Correct Scores on ERT Subtests

	Pine School			Water School		
	Fall	Spring	Gain	Fall	Spring	Gain
Labels in context	71	82	11	70	86	16
Labels out of context	20	45	25	26	53	27
Spelling	6	54	48	42	69	27
Pseudowords	3	43	40	38	77	39
Common words	1	28	27	17	48	31

Table 2

Intercorrelations for Gain Scores on Form of Print Tasks

	Labels in Context	Labels Out of Context	Spelling	Pseudo- words	Common Words
Labels in context		.16	-.03	-.07	-.09
Labels out of context	.43		.30	.38	.40
Spelling	.15	.06		.48	.37
Pseudowords	.05	.01	.52		.65
Common words	.22	.57	.10	.25	

Values above the diagonal are from Pine School, and values below the diagonal are from Water School.

SHANNY

Shanna

Jamey

Jamey

TROCK

TROCK

Halex

Haley

Figure 1. Examples of children's first name at the beginning (September) and the end (May) of kindergarten.