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The Effects of Observational Learning on Preschoolers' Literacy-related Behaviors and Knowledge

by

Sherri L. Horner

A dissertation submitted to the Graduate Faculty in Educational Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

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Abstract

The Effects of Observational Learning on Preschoolers' Literacy-related Behaviors and Knowledge

by

Sherri L. Horner

Advisor: Professor Barry J. Zimmerman

Previous reading research has documented wide discrepancies in preschoolers' letter-name knowledge. Also, most interactions within alphabet book-reading episodes revolve around the pictures rather than the print. Previous social cognitive research has documented that people can learn behaviors and concepts through observing models. One purpose of this study was to investigate whether preschoolers can learn to ask questions and make comments about letters by observing a model ask questions about letters. Another purpose was to investigate whether preschoolers can learn letter names by commenting about letters.

The participants were sixty-two preschoolers who attended Head Start. Three modeling episodes between an adult and a child model within a shared book context were

videotaped. The child's behavior varied for each of the three modeling episodes: she asked either picture-related questions, print-related questions, or no questions.

Children were randomly assigned to the print-questions videotape, picture-questions videotape, no-questions videotape, or no-videotape group. Each child watched the appropriate videotape twice, on separate days, individually with the researcher. Directly after viewing the videotape, the researcher read an alphabet book to the child. Next, the child was given the letter-name task as a posttest.

Both hypotheses relating to the effects of observational learning were verified. Children who observed a model ask questions asked more questions than children who did not observe a model ask questions. Children who observed a model ask questions about the letters made more letter-related comments than children who did not observe a model ask questions about the letters. However, the hypothesis about learning letter names was not validated. Children who made print-related comments did not learn more letters than children who did not make print-related comments.

In conclusion, this study has shown that young children's literacy-related behaviors can be changed observational learning was shown to be a highly effective

means of changing preschoolers' behavior within shared book-reading episodes. Preschoolers were able to ask questions and make print-related responses after observing a child model those behaviors. However, an increase in print-related responses did not translate into an increase in letter-name knowledge.

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Chapter One -- Introduction

Because reading is a highly complicated and multifaceted activity (Ehri, 1995), children who learn to read must acquire a wide variety of skills (Adams, 1990). Many of these skills can be developed through formal reading instruction but others are precursors to reading. The latter are considered "emergent literacy" skills because emergent readers cannot read per se but are learning to be conscious of print, its meaning, and its functions.

According to Ehri's (1995) phase theory of acquisition, these emergent readers are in the first phase, pre-alphabetic, of four (i.e., partial alphabetic; full alphabetic; and consolidated alphabetic) phases in the development of word-reading. Because children in the pre-alphabetic phase do not have complete letter knowledge, they utilize contextual elements to read words (e.g., the red octagon to read STOP on a stop sign; Masonheimer, Drum, & Ehri, 1984). To move into the next phase, partial alphabetic, beginners must learn about letter-name or letter-sound relations. Letter-name knowledge consists of matching the verbal letter name with the printed letter; for example, the verbalization 'a' with the shape 'A.'

Letter-sound knowledge consists of matching the letter shape with its sound; for example, 'A' with /e/. During the partial alphabetic phase, beginners utilize their burgeoning letter knowledge to read real words by processing some, but not all, the letters and sounds in words. Many times they focus on the first or last letters in a word and use those letter names or sounds to remember the word. Because this strategy becomes less effective as children encounter more and more words, especially words with the same boundary letters (e.g., stop, soup, and sleep), children learn to utilize all the letters and sounds in words to read them. This strategy moves them into the full alphabetic phase. As children become more fluent and are exposed to more text, they learn to read frequent combinations of letters as units rather than as individual letters (e.g., tion, ing, and trans become units). These children are in the consolidated phase.

Although movement through the alphabetic phases is necessary to achieve fluent reading, the transition from the pre-alphabetic into the partial alphabetic phase may be the most crucial. This is because the partial alphabetic phase establishes the foundation for the later phases. Children who do not build this foundation will be unable to

achieve a mature understanding of the alphabet and knowledge of spelling patterns to support fluent reading. Research has shown a high correlation between children's knowledge of letters and sounds (partial alphabetic phase knowledge) and their subsequent reading achievement in elementary school (Chall, 1967, 1983; Share, Jorm, MacLean, & Matthews, 1984).

There are several theoretical reasons why knowledge of letter names is an important element in the development of fluent reading skills. First, many words have letter names in their pronunciations. For example, A is in 'ape,' L is in 'elephant,' and I and E are both in 'ice cream.' This not only aids children in reading but also facilitates spelling. Several researchers (Bissex, 1980; Read, 1971) have shown that even very young children can spell. Although their spellings are unconventional, or inventive, they show systematic use of letter-name and letter-sound knowledge. For the above examples, children can spell AP (ape), LFNT (elephant), and IC KREM (ice cream). Children's letter-name knowledge correlates strongly with their ability to spell inventively (Richgels, 1986).

Second, "extracting sounds from letter names is a much easier task than learning letter-sound relations from

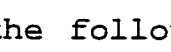
scratch." (Ehri, 1983, p. 144). This is so because there is a logical connection between most letter names and their sounds. Durrell (1980) claimed that most letters, excluding h, q, w, and y, have the phoneme they represent within their names. For instance, D begins with the phoneme /d/. Ehri (1983) states that even Durrell's four exceptions show some relationship, although it is less obvious than for other letters.

In another ingenious series of studies, Treiman, Weatherston, and Berch (1994) analyzed the two letter names that give false cues to their sounds. The letter name Y begins with the sound /w/ instead of /y/ and the letter W begins with /d/ instead of /w/. Kindergartners used Y significantly more often to spell words beginning with W (e.g., YR for war; YRM for warm; and YRK for work) than for words beginning with other phonemes (e.g., fun, jump, and land). Also, preschoolers and kindergartners were "*more* likely to give *y* as the first letter of /w/-initial syllables, where *y* responses were incorrect, than to give *y* as the first letter of /y/-initial syllables, where *y* responses were correct" (Treiman et al., 1994, p. 106). At first glance, this research seems to challenge the effectiveness of letter-name knowledge in learning to read

and spell; however, Y and W are the exceptions that prove the rule. Twenty-two letters (85%) give helpful cues as to their sounds (e.g., B begins with /b/ and L ends with /l/). This series of studies also points out that children may have a propensity to utilize this strategy of letter name-sound relationship. Because it is highly unlikely that any teacher or parent has taught children that Y says /w/ or W says /d/, we may conclude that either they are able to apply this strategy inherently or that it is easily extracted and transferred from the teaching (or modeling) of other letter-sound relations. Regardless of how they learn this strategy, knowing letter names can give children a boost in learning letter-sound correspondences for the majority of letters. This knowledge, in turn, aids them in reading and writing.

Ehri (1995) recommends to teachers and parents "to prepare students for the rudimentary [partial] alphabetic phase of reading, they need to learn how to name and to write letters" (Ehri, 1995, p. 181). This is excellent advice for practitioners; however, there is very little data regarding how this should be done optimally. Therefore, the present research is a preliminary attempt to

assess the effectiveness of one technique to teach and learn letter names.

Adults tend to assume that learning letter names is easy. We do not remember having learned them so it seems as though we have always 'just known' them. Many children, seem to learn them spontaneously, without any effort, and at a very young age. However, if one steps back and thinks about the skills and processes that need to be learned, it is a wonder that anyone learns the letter names at all. "They are graphically abstract, having no prior iconic significance... They are graphically sparse, composed of rather minimal configurations of rather minimal visual features... They are highly confusable in terms of our normal visual recognition heuristics" (Adams, 1990, p. 347). That is, Sally is still Sally whether she is standing upright, standing on her head, or has her back to you; however, letters are only letters if they are in the correct spatial position. Of the following:  , only the second is considered a true letter. To make matters worse, each letter has four forms (i.e., uppercase and lowercase in both manuscript and cursive; e.g., F, f, *F*, *f*), all of which are assigned the same name. Therefore,

learning the letter names and shapes is a complicated task that takes much time, effort, and practice (Adams, 1990; Ehri, 1986).

Children who come from homes that have a print-rich environment and a "press" for education (Anbar, 1986; Heath, 1982) have ample time and opportunity to learn the connections between the letter names and shapes. Because many of these children have magnetic letters and alphabet books, blocks, and puzzles almost from birth onward and their parents emphasize the print in the environment, they have up to five years before entering kindergarten to develop their alphabet knowledge. However, there is another group of children who come from homes with less print-rich environments and "press" for education (Heath, 1982; Teale, 1986). These children may not have many toys or books related to the alphabet and their parents do not emphasize the print in the environment. Therefore, such children begin kindergarten without a highly developed base of alphabet knowledge. Unfortunately, they begin their school careers already two to four years behind some of their fellow classmates. They do not have the time to develop letter-name knowledge at the same leisurely pace as their peers. The present study investigates whether preschoolers

who do not have highly developed letter-name knowledge can learn letter names through shared book-reading episodes.

It has been assumed that shared storybook-reading is one of the primary ways that children gain letter-related knowledge (see Scarborough & Dobrich, 1994 for a review). It is also assumed that the children, or the adult readers, must comment on the letters for the children to learn their names. However, research has shown that the interaction within a shared reading context usually centers on the meaning of the story and the pictures rather than on the print. Young children spontaneously made very few questions or comments about the print (Baker, Fernandez-Fein, Scher, & Williams, 1998; Yaden, 1982; Yaden, Smolkin, & Conlon, 1989). Therefore, one potential way for enhancing the effects of shared book-reading on letter learning is to induce children to ask questions or make comments about the print.

One method to induce behavioral change is through observational learning. There is extensive evidence that people can learn many behaviors, thought patterns, and skills vicariously through observing other people (Bandura, 1986). Observational learning occurs when an observer abstracts a rule or concept underlying the model's

behavior. After abstracting a rule, the observer can then use it to act in similar situations (Zimmerman & Rosenthal, 1974b). Therefore, this research study investigated whether children can learn to ask questions and make comments about the print by observing a model who asks questions about the print. Also, do those children who do ask questions and make comments about the print learn letter names?

Chapter Two -- Literature Review

Relationship between Alphabet Knowledge and Reading Achievement

Over the last thirty years, many researchers have documented the relationship between children's knowledge of the alphabet before and during the early elementary school years and their subsequent reading achievement. Chall (1967, 1983), as part of a comprehensive study on the effectiveness of different beginning reading programs, investigated seventeen studies (every study she could locate in 1967) on the correlation between letter or phonic knowledge and reading achievement. From her analysis, Chall (1967) found that

> a child's ability to identify letters by name (letter knowledge) in kindergarten or the beginning of grade 1 is an important predictor of his [sic] reading achievement at various points in the first and second grades (r's from .3 to .9). Letter knowledge has a generally higher association with early reading success than mental ability as measured by various intelligence tests and other tests of language and verbal ability (r's from. 2 to .7; pp. 141;149).

In her 1983 update, Chall states that findings between 1967 and 1983 have confirmed this earlier research.

Other studies have substantiated Chall's findings by showing a unique contribution of letter naming. The First-

Grade Cooperative Studies, commissioned through the U. S. Office of Education (cited in Adams, 1990), represent an extensive collaboration. Twenty-seven individual projects investigated beginning reading instruction approaches; students' reading readiness; various individual, school, and group characteristics; and their relationship to literacy achievement (both reading and spelling) at the end of first grade. The best predictor was students' "entering ability to recognize and name uppercase and lowercase letters. This single factor accounted for 25 to 36 percent of the variation in reading ability at the end of the year, and it did so regardless of instructional approaches" (Adams, 1990, p. 43).

Share et al. (1984), in a longitudinal study, researched in-school and out-of-school factors related to individual differences in reading achievement of Australian children at the end of kindergarten (n = 525) and first grade (n = 479). Letter names strongly correlated with end of kindergarten (r = .68) and first grade (r = .58) reading achievement. In comparison with the other 38 variables, children's knowledge of letter names was the best predictor for kindergarten and second best for first grade.

Importance of Letter-Name Knowledge to the Partial Alphabetic Phase

Ehri and her colleagues have done several research studies showing that letter-name knowledge is an important factor in the development of partial alphabetic skills. Masonheimer, Drum, and Ehri (1984) showed that expert environmental print readers were not able to read environmental print (e.g. McDonald's, Stop) without the context (e.g., golden arches, octagon sign) unless they knew almost all the letter names and had moved into reading. Children who could read the environmental print without the context could name 98% of uppercase and lowercase letters. Children who could only read the environmental print with contextual cues knew, on the average, 62% of the letters. Also, only those preschoolers who could read the de-contextualized environmental print were able to distinguish between correctly spelled and misspelled environmental print words while the other children read the misspelled words as the environmental print word (e.g., Xepsi as Pepsi). Masonheimer et al. (1984) concluded that letter-name knowledge rather than environmental print knowledge was the key factor for reading the de-contextualized words.

In another study showing the importance of letter-name knowledge, Ehri and Wilce (1985) taught kindergartners to read two sets of six words. In one set, the words were spelled in simplified phonetics (e.g. NE for knee, KOM for comb). The other set had visually distinctive letters (e.g., Fo for knee, uHE for comb). They divided the kindergartners into three groups, prereaders, novice, and veteran readers, according to their ability to identify primer words.

The prereader group did better on the visually distinctive words than on the simplified phonetic words. The opposite was true for the novice and veteran readers. However, in comparison to the novice and veteran readers, the prereaders identified a smaller number of both types of words. Even for visual distinctive spellings, the prereaders did not identify 50% of the words correctly (approximately 2.5 out of 6). They also recalled a smaller number of initial and final letters for both phonetic and visual spellings than the novice and veteran readers. They recalled only 1.5 out of six initial letters and less than one final letter.

The prereaders in Masonheimer et al. (1984) fit into Ehri's (1995) phase of pre-alphabetic readers because they

used visual cues to read. Although they were able to identify some words, they did not use the letters as symbols for sounds but rather as holistic picture-like forms or icons. This could explain why they did better on the visually distinctive word set. These words differed more drastically, as icons, than did the simplified phonetic words (e.g., XGST and UHE versus BLUN and MSK for balloon and mask). This could also explain why they recalled so few initial and final letters for either of the spelling sets.

The novice and expert readers in this study would be classified as being in the partial alphabetic phase. Because they were able to use at least some letters as phonetic cues for remembering words, the phonetic words were more helpful in aiding their recall than the visually distinctive words. They also recalled more boundary letters for the phonetic words than the visual cue words. Ehri and Wilce (1985) state that a likely prerequisite for transitioning from visual cue to phonetic processing of words is "that they need to be familiar with the names or sounds of alphabet letters appearing in the spellings" (p. 175).

Both the correlational studies (Adams, 1990; Chall, 1967; Share et al., 1984) and the experimental studies (Ehri & Wilce, 1985; Masonheimer et al., 1984) add weight to the contention that letter-name knowledge is crucial. Learning letter names aids children in learning to read fluently.

Development of Letter-Name Knowledge

Although many researchers have examined letter-name knowledge, they have, almost exclusively, focused on its place in the development of emergent literacy skills. For instance, Anbar (1986) proposed eight stages of development, with letter naming following concepts about print (i.e., front-to-back, left-to-right) and preceding letter-sound and letter-word knowledge. Very few researchers (Mason, 1980; Worden & Boettcher, 1990) have looked specifically at the development of letter knowledge.

Mason (1980) assessed the development of both letter and word knowledge of 38 middle-class four-year-olds in two preschool classrooms. Parents completed a questionnaire on their children's knowledge about and behavior toward reading at the beginning and end of the school year.

One aspect of the parent questionnaire dealt with the preschooler's knowledge of letters (e.g., Does the child

point out and name letters of the alphabet when playing?; How many different alphabet letters does the child try to print?; If the child prints, what case does he (sic) use?; and How many alphabet letters do you think the child can recognize?). According to beginning- and end-of-school parental questionnaires, the children's knowledge about and behavior toward letters changed over the course of the year. Eleven children (29%) recognized fewer than 5 letters in September while only one (3%) was at this level in May. In September, only five children (13%) were reported to be in the middle category (about 10 letters) and this was also reduced to a single child (3%) by May. In September, 22 parents (58%) reported that their children recognized more than 20 letters while in May this increased to 36 (95%). In September, 15 (39%) of parents reported that their child very often identified letters in play while 24 (63%) did so in May.

Another aspect of the parent questionnaire dealt with parental support for reading. In September, the majority of parents reported a high level of support for reading and this support did not change substantially over the course of the year. For instance, 26 homes had several alphabet books in September while 28 homes did in May. In both

September and May, 17 parents reported that their child was read to more than two hours per week. There was slight change from 16 parents in September to 18 in May reporting their child was read to about one hour per week. Although the children's letter-name knowledge increased dramatically, it was not due to a corresponding increase in parental support for reading.

The conclusions drawn from this study must be qualified because of several difficulties with the measures. First, there were several problems with the multiple-choice format of the questionnaire. Second, although Mason (1980) assessed a wide range of skills, she relies almost exclusively on the parent questionnaire for her analyses.

For the question "how many alphabet letters do you think the child can recognize?", the parents' choices were "less than 5, about 10, more than 20" (Mason, 1980, p. 226). This is not an adequate range of choices; if one child knew 19 letters and another child knew 6 letters, both parents would be forced to report "about 10." Just as problematic is that this question does not distinguish between uppercase and lowercase letters. Should parents count a letter as recognized if the child knows the

uppercase only or does the child need to know both uppercase and lowercase to qualify? (Only rarely does a child know the lowercase before the uppercase letter). Unfortunately, because the question used by Mason (1980) is unclear, we can not determine how the individual parents chose to interpret it. Therefore, we also can not determine whether the parents as a whole interpreted it similarly or differently.

Other multiple-choice responses used the terms seldom, occasionally, and very often. Parents may have interpreted these vague terms differently in September and May and/or from other parents. Also, there was a restricted range for several questions on reading to your child. For example, the only choices for "how often is the child read to at home per week?" were "less than ½ hour, about 1 hour, and more than 2 hours". Other research (see Scarborough & Dobrich, 1994 for review) have documented that there is a great variety in reading frequency even above two hours per week; therefore, this question might not be sensitive enough to denote the true variation with this sample.

Although Mason (1980) reports that she tested the children several times on their letter-name knowledge, her analyses are based on parent questionnaires. Phillips and

McNaughton (1990) found that caregivers' estimations of their children's knowledge about print (including letter names, words, and concepts) were much higher than the children's scores on the assessment tasks. Because Mason (1980) did not analyze the data from the letter-name tasks, we cannot determine any correlations between them and the parent questionnaire. Because of the lack of clarity in the questions, the restricted range in the possible responses, and the possible inflation of the children's knowledge due to the use of parent estimates, the results of this study must be viewed with caution.

Worden and Boettcher (1990) assessed letter-name knowledge, using cross-sectional methodology, of 188 middle-class children aged 3, 4, 5, 6 and 7 years. Five tasks were administered: recitation of ABC song; letter naming; letter printing; letter-sound correspondence; and letter-word correspondence. For letter naming and printing, knowledge of uppercase and lowercase letters was tested separately. As expected, they found an age progression for all of these tasks; that is, the older the children, the more letter knowledge they exhibited. Also, the results for all the tasks were highly correlated, indicating that

children who did well on one task tended to do well on the others.

Worden and Boettcher (1990) divided the children within each age level into three groups, low, middle, and high, according to the number of letters recalled. There were at least as many children in the middle group as in either the low or high groups; therefore, the authors contend that letter knowledge is not gained through a "rapid, all-or-none process" (p. 285), but rather occurs gradually. However, their manner of grouping was skewed to favor the middle group. Children who knew between 0-5 letters were placed in the low category, those who knew between 21-26 were placed in the high category, and those who scored between 6-20 were placed in the middle category. The low and high knowledge groups had only a range of 6 letters that is less than half that of the middle group (range of 15). The authors do not justify their reason for choosing these particular cut-off points and their wording seems to imply a post-hoc decision. They state "most children of a given age should either know very few (say, [italics added] between 0 and 5 letters) or almost all (more than 20)" (Worden & Boettcher, 1990, p. 285).

Calfee, Cullenbine, De Porcel, and Royston (cited in Mason, 1980) found a bimodal distribution for letter knowledge in kindergartners, with the majority scoring either greater than 20 or less than 8. Mason (1980) found a bimodal distribution on the September parent questionnaire, with 11 four-year-olds (out of 38; 30%) recognizing fewer than 5 letters, 5 (13%) recognizing about 10 letters, and 22 (58%) recognizing more than 20 letters. Blanchard and Logan (1988) found individual differences that were distinctly skewed toward the lower end. Of the 108 kindergartners tested, 77 (71%) knew fewer than 9 letters, 15 (14%) knew between 10-17 letters, and 16 (14%) knew more than 17 letters. Thirty-nine kindergartners knew 0 letters.

In an unpublished study (Horner, 1996), I found a bimodal distribution for uppercase letters. Forty-three preschoolers and kindergartners, ranging from three to five years of age, were tested on their recall of both uppercase and lowercase letters. The children were divided into low, middle, and high groups, according to their letter recall knowledge. The cut-off points for each of these groups were chosen to be exactly one-third of the possible score (i.e., 9 letters in each category). For uppercase knowledge, 21 (49%) children knew 8 or fewer letters, 3 (7%) knew between

9 and 17, and 19 (44%) children knew 18 or more. These data show a distinct bimodal distribution, with 93% of the children recalling either more than 17 or less than 9 uppercase letters.

In summary, very few researchers (Blanchard & Logan, 1988; Calfee et al., as cited in Mason, 1980; Horner, 1996; Mason, 1980; and Worden & Boettcher, 1990) have actually investigated the development of letter-name knowledge. All these researchers have documented a great degree of variability in young children's letter knowledge. It seems that young children either know most, if not all, of their letters, or very few, if not zero.

Individual Differences in Letter-Name Knowledge

The next logical question is why do some children know the vast majority of letter names before entering kindergarten while many others lack this knowledge. A common assumption is that the frequency and quality of literacy-related materials and activities vary in these children's homes that, in turn, creates differences in their literacy knowledge. It is assumed that children with literacy-rich environments will have more knowledge of literacy than children with less literacy-rich

environments. However, this link has not yet been conclusively documented.

Many studies have linked various home literacy factors (e.g., number of books in the home, frequency of adult reading behaviors, trips to the library, and shared storybook reading) to children's reading achievements (see Scarborough & Dobrich, 1994 for a review). However, because most of these studies use composite scores for both emergent literacy skills and home literacy factors it is impossible to examine the influence of home environment on letter-name knowledge specifically.

There have been several extensive studies (Heath, 1982; Teale, 1986) which have documented the differences in interactions around literacy in young children's homes. Teale (1986) observed 24 preschoolers from 22 low-income homes (two sets of siblings) over a period of 3 to 18 months. At the beginning of the study, the children were between the ages of 2½ and 3½. Teale and his assistants took notes on any activities involving reading and/or writing that took place in view of the preschoolers. They also denoted whether the child was a participant or an observer.

Environmental print in the homes and the communities of these participants was relatively similar, except the Mexican-American children were also exposed to Spanish print. There were numerous children's books in eight households while 13 other homes had few books and one had no materials appropriate for children. Four families had many adult books, magazines, and newspapers while the other 18 had few reading materials for adults. In 19 homes, while pencils, pens, and paper were available, they were usually difficult to find and "often the search which ensued in such cases resulted in the child's losing his or her desire to write" (p. 179). In the other three homes, there was at least one designated area for the preschoolers' writing materials. The four children in these three homes were observed writing more frequently than the other children. The amount of literacy to which the children were exposed, either as participant or observer, ranged in frequency from, on average, .34 to 4.06 events per hour and from, on average, 3.09 to 34.72 minutes per hour.

Teale (1986) categorized all literacy events into nine domains of activity: daily living routines, entertainment, school-related activity (including 'playing school'), work, religion, interpersonal communication, participating in

"Information Networks", storybook time (including all types of children's books), and literacy for the sake of teaching/learning literacy. All families used literacy to mediate their daily living routines; this domain consisted of 25% of all literacy occurrences. Literacy for the sake of teaching/learning literacy was observed for only 11 of the 24 children. For these 11 children, this domain consisted of more than 20% of all literacy occurrences while, for the remaining 13 children, it remained at zero.

Teale (1986) notes the absence of storybook reading in most of these homes. Only three children were read to frequently (two averaged 4 times and one 5 times per week), another six had occasional, but infrequent, adult-child interactions around books (e.g. 3 times in 70 hours of observation over 2 years), and the other 13 were never observed reading storybooks. The three children who frequently participated in storybook reading were "judged, on the basis of observer opinion and results from informal print awareness and book handling interviews, to be among the most highly developed of the 24 focal children in terms of emergent literacy abilities" (p. 196). Unfortunately, this informal method was the only one used to assess the children's emergent literacy knowledge.

Heath (1982) delineated many ways in which the homes of children from White middle-class (Maintown), White working class (Roadville), and Black working class (Trackton) parents differed from each other and how these differences affected the children's school careers. Children from Maintown were expected to learn, among other things, to give attention to books and information derived from books, to acknowledge questions about books, to answer questions from their knowledge of books, and, from about age three, to listen quietly until a break in the story when the adult asks a question. In these homes, book reading was an "any-time activity": "any initiation of a literacy event by a preschooler makes an interruption, an untruth, a diverting of attention from the matter at hand... acceptable" (Heath, 1982, p. 53).

Roadville children learned to have different expectations about literacy events. The learning of the rules surrounding reading was important. Children were, at first, encouraged to participate by naming specific items (alphabet letters, numbers, pictures) within books. Adults tended to give simplified versions of the stories instead of reading the actual print. As the children grew older (three and four years of age), adults insisted that the

children listen quietly and be able to answer questions at the end. They also utilized preschool workbooks that reinforced "repeatedly that the written word could be taken apart into small pieces and one item linked to another by following rules" (p. 61). Naps and bedtime were most frequent times for reading-related activities.

In Trackton, parents believed that preschoolers are "coming into their learning by experiencing what knowing about things means... Parents do not believe they have tutoring role in this learning; they provide the experiences on which the child draws and reward signs of their successfully coming to know" (Heath, 1982, p. 67). In contrast to parents from Mainville and Roadville, Trackton parents did not point out separate elements in their environment, or in books, to which their children should attend. Neither did they label items or simplify their speech. Instead, they expected their children to learn by practice and modeling through continuous exposure to everyday communication between people in their environment. These children did not normally have reading materials (e.g., books, magazines) nor were they read to frequently.

Unfortunately, like Teale (1986), Heath (1980) did not assess these children's knowledge about literacy so these

differences in home environments can not be directly linked to any differences in literacy. Therefore, these studies still cannot fully answer the question of why young children differ so much in their literacy-related knowledge. However, the gross differences between Teale's families, especially in the two domains, storybook time and literacy for the sake of teaching/learning literacy, and Heath's families in emphasis placed on literacy strongly support the contention that variations in home literacy environments may differentially affect children's literacy knowledge.

Anbar (1986) investigated the reading development of six children, ranging from 2.9 to 4.10 years old, who learned to read precociously without formal instruction. She gathered this information retrospectively through two parental interviews dealing with the effect of environmental influences, both physical and social, on the child's reading development. All the children were exposed to high levels of literacy in their homes. They all had many books, including alphabet books and commercial workbooks. They also had magnetic refrigerator letters, letter blocks, letter cards (i.e., flashcards), electronic games, and watched Sesame Street. Their social milieu was

also very literacy oriented. "Although 11 of the 12 parents reported that they never intended to teach their child to read, and four of the six couples appeared to sincerely believe that their child learned to read early, primarily, because of his or her innate ability, findings indicate that all these parents did spend a great deal of time interacting with their child around reading-related activities -- from an early age" (Anbar, 1986, p. 76). For instance, all six couples reported daily readings with pointing at the words and teaching their child the names of letters. All six also played letter and spelling games. They pointed out words in street signs, store names, direction words, and captions in magazines. They also helped their child in spelling attempts "on the refrigerator, on the floor, in the sand, or on a sheet of paper" (p. 15). This spontaneous and informal teaching and learning have also been documented in many other descriptive case studies (e.g., McGee & Richgels, 1989; Payton, 1984; van Lierop, 1985).

Although Anbar (1986) adds another piece to the puzzle, it is not yet complete. She investigated the home literacy environment only of precocious readers; therefore,

we can only assume that these homes are different from those of children who are behind in reading.

Teale (1986), Anbar (1986), and Heath (1982) have documented the wide variance of literacy-related attitudes, behaviors, and materials to which young children are exposed. Other studies (Blanchard & Logan, 1988; Mason, 1980; Worden & Boettcher, 1990) have documented the differences in young children's letter-name knowledge. Each of these groups of studies gives added weight to each of the two elements of the assumption. Although the link between differences in home literacy environments and differences in children's literacy knowledge is still hypothetical, the combination of these studies strengthens the assumption that this link is important. For instance, Teale (1986) mentioned that Becki was read to five times per week while Mike was read to approximately three times in a two-year period. If we assume that they were both read to at these same frequencies from the age of two until kindergarten (age five), Becki would have been read to approximately 1000 times and Mike about 6 times. Most preschoolers would probably fall somewhere between these two extremes, although some would be read to more often than Becki (Anbar, 1986; Payton, 1984; Phillips &

McNaughton, 1990; van Lierop, 1985) and the majority of Teale's participants were never read to. When confronted by this vast difference in home literacy factors, it is very difficult not to think there is a link between these factors and children's letter-name knowledge. "Such [literacy knowledge] development, however, does not occur in a vacuum. It depends on growing up in an environment where print is important" (Adams, 1990, p. 336).

Shared Book Reading

One aspect of the home literacy environment is shared book-reading episodes. In many literacy-rich homes, shared book-reading routines are developed. For instance, many parents read a bed-time story to their preschoolers (Anbar, 1986; Heath, 1982). Although shared book reading has been touted as a major source of alphabet knowledge (see Scarborough & Dobrich, 1994, for a review), research has not strongly supported this contention.

Utilizing a case study design, Yaden (1982) investigated the types of spontaneous questions asked by two young boys within the context of shared book-reading. Because he was the father of the two participants, he was able to document the interaction during naturally occurring storybook-reading episodes. Over the course of nine weeks

and 24 sessions, the four-year-old asked a total of 60 questions. The majority of these questions were about the illustrations (47%) and the meaning (22%). The child only asked one question (1.5%) about letters. Questions dealing with print in any form (i.e., letters, punctuation, single words, and sentences/phrases) amounted to 28% of all questions. The two-year-old asked a smaller number of questions (38) that were focused more on the illustrations (82%) than on meaning (3%; 1 question). He asked only 1 question about letters and all print-related questions were 16% of the total.

Yaden, Smolkin, and Conlon (1989) extended the previous study from nine weeks to cover a two-year time span and to include seven more children during one year. They developed five broad categories of questions: (1) graphic form (i.e., letter configuration, name, sound, punctuation, written word name, spelling, form of multiple word arrays, and name of multiple word arrays); (2) word meanings (i.e., meanings of single words and multiple words); (3) (oral) story text (i.e., book language and story text); (4) pictures; and (5) book conventions.

For both Yaden's sons, the types and frequency of questions over the two-year time span were very similar to

the nine-week period. The main difference was that the younger child began to focus less on the illustrations than previously (down to 56% from 82%) and more on the story (up to 16% from 3%). However, the distribution of questions remained the same for both boys, with the majority focusing on the illustrations then story text, word meanings, graphic form, and book conventions, in that order.

The authors also compiled data from seven preschoolers (age range of 3.2 to 5.3 years) who participated in book-reading episodes with their parents in their homes. All of these families had middle to upper-middle incomes. These children's questions were very similar in nature and proportion to Yaden's sons. Except for one child, over 50% (ranging from 52 to 82%) of the children's questions were about the pictures. The other child asked questions about the story 59% of the time and only 17% were about the pictures.

The majority of the children (six out of seven) asked questions about the graphic form less than 10% of the time. For the other child, graphic form questions constituted 24% of his questions. The authors postulated that, because his mother told them that Andy was decoding many words, "he was asking a greater proportion of questions about print

because he was beginning to discover the alphabetic principle" (p. 204-205).

Both of Yaden's (Yaden et al., 1989) sons asked most of their questions about graphic form while reading one particular book. In this book, the majority of the text was located in balloons above the characters' heads. In study 2 (Yaden et al., 1989), the only child, Ed, who asked many questions about individual letter names and sounds did so while reading an alphabet book. The authors conclude, "that an illustration style that outlines and highlights printed form may direct children's attention toward print at an earlier age than if they were reading more conventional text" (p. 210).

Bus and van IJzendoorn (1988) observed 15 three-year-olds, and 14 five-year-olds interacting with their mothers while watching Sesame Street, reading a picture book, and looking at an alphabet book in a laboratory playroom. Although Sesame Street elicited the least number of verbalizations from both the children and the mothers, it also had the highest percentages of print-related responses for both the mothers (38% with three-year-olds and 69% for five-year-olds) and the children (35.7% for the three-year-olds and 70% for the five-year-olds). For the three-year-

olds, 2.5% of the children's and 2.0% of the mother's comments during the picture book were print related compared to 14.9% and 45.9%, respectively, for the alphabet book. For the five-year-olds, 5.0% of the children's and 7.9% of the mother's comments during the picture book were print-related compared to 38.3% and 62%, respectively, for the alphabet book. Interestingly, the number of story-related responses for the children was approximately the same across the two types of books, but they increased print-related comments during the alphabet book reading, thereby increasing the total number of comments. In summary, neither parents nor children made many print-related remarks during a narrative book. These comments increase within formats where the print is more salient, regardless of whether that format is TV or books. However, because TV decreases the overall level of participation for both mothers and children, alphabet books might be the better format for talking about print.

Bus and van IJzendoorn (1988) also tested the two older groups of children on pretend reading, constructing words, letter-name knowledge (12 lowercase letters), function, and conventions. The five-year-olds knew significantly more than the three-year-olds on all the

emergent literacy tasks. An interesting note is the wide variance of scores for the five-year-olds; M = 4.9 and SD = 4.1, denoting a bi-modal distribution. Scores on all tasks were positively correlated ($p < .001$) with the children's print-related comments during the alphabet book. Scores on the pretend reading and letter-name knowledge tasks were positively correlated ($p < .05$) with print-related comments during Sesame Street. All tasks were also negatively correlated with mother's use of narration during the letter book. However, as mentioned by Scarborough and Dobrich (1994), because the two age groups differed significantly on their emergent literacy knowledge and Bus and van IJzendoorn (1988) collapsed the two age groups for the analyses, age becomes a confounding variable.

Phillips and McNaughton (1990) collected data from 10 Anglo middle-class New Zealanders, recruited from libraries and bookstores, about their book-reading habits with their three- and four-year-olds. They also had the families read nine unfamiliar narrative storybooks and tape record at least the first, second, and last readings. The authors then analyzed the three most popular books. They coded each insertion (i.e., statements that were not part of the actual text) as book-related, unrelated, and inaudible.

Book-related insertions had sub-categories of print-related (i.e., references to letters, words, and pages), narrative-related, and other book-related (e.g., comments about illustrations, counting objects, labeling of pictures). There were, on average, seven insertions during each book-reading episode. The vast majority (96.2%) of insertions were book-related and significantly more insertions were narrative-related (85%) than print-related (3.3%) or other book-related (7.4%). This was true regardless of whether the parent or child initiated the interaction. "These results show that both the reader and the child focused primarily and almost exclusively on the process of identifying meaning within the narrative" (Phillips & McNaughton, 1990, p. 206).

For her master's thesis, Munsterman (1996, cited in Baker et al., 1998) observed 30 dyads of kindergartners reading with the family member they most frequently read with at home (half with their mother and half with an older child). Each dyad read an unfamiliar storybook and, when possible, a familiar book from the child's home. She categorized all utterances as content-related immediate speech, content-related non-immediate speech, story structure/organizational speech, or print/skills-related

speech. "Content related-immediate talk was most frequent. Only 6.3% of total speech was skills/print related, and the mean frequency of such speech was .82 utterances per book" (p. 28). However, Munsterman found a difference in print-related insertions depending on type of book and on familiarity. For rhyming, alphabet books, and predictable language books, print/skills-related comments were "64%, with frequency of 5.75 per book, in contrast to the percentage of skills comments for all familiar books of 11%, with an average of only 1.48 utterances per book" (p. 28-29). Although the percentage and frequency for the unfamiliar books were not given, one can extrapolate from the two quotations above that familiar books elicited more print-related responses than did unfamiliar books. The total of print/skills-related responses for all books was only 6.3% but 11% for familiar books; therefore, assuming an approximately equal amount of books in each condition, the percentage for unfamiliar books must be substantially lower than 6.3%.

Pelligrini, Perlmutter, Galda, and Brody (1990) looked at interactional patterns within shared reading episodes with 13 lower-SES Black mothers and their four-year-old children. They varied the type of book by genre, narrative

vs. expository (labeling books), and by format, familiar (cartoons, newspaper ads) vs. traditional (storybook, dictionary). They did not find significant differences between the two formats (i.e., familiar vs. traditional); however, the authors did not ascertain how familiar these families actually were with the familiar and traditional formats. Therefore, this lack of difference between the two formats may be because they were equally familiar, or unfamiliar, to these participants.

Children participated significantly more frequently in expository than in narrative texts. Also, mothers used significantly more teaching strategies in the expository texts than in the narratives. Pelligrini et al. (1990) concluded that "expository texts are more useful teaching tools, especially for vocabulary teaching, to the extent that dyadic interaction around books tends to facilitate learning" (p. 450).

In conclusion, research on different interactional patterns during shared book-reading episodes have documented that print-related comments are rare, usually less than 10% of the dialogue. However, they increase with print-salient books (e.g., alphabet books) and with repeated readings of narrative books. However, alphabet

books are not often read by most parents (Baker et al., 1998; Phillips & McNaughton, 1990) and many children do not participate in shared book-reading episodes sufficiently often to benefit from repeated exposures.

The impact of print-related speech during shared book-reading episodes on preschoolers' letter knowledge is presently unknown. Yaden and his colleagues (Yaden, 1982; Yaden et al., 1989) did not assess the print-related knowledge of their participants. Although Phillips and McNaughton (1990) reported that, on average, their participants knew 13 of the 52 (both uppercase and lowercase) letters, they did not relate this prior knowledge to book-reading interactions. Munsterman (1996, cited in Baker et al., 1998) attempted to predict kindergartners' phonological awareness and orientation toward print by their print-related utterances during shared book-reading episodes; however, she was unable to test this relationship because so little print-related talk occurred. Pelligrini et al. (1990) did not assess their participants' letter knowledge because that was beyond the scope of their research. Bus and van IJzendoorn's (1988) is the only one that correlated letter-name knowledge with print-related comments during shared book-reading episodes.

Unfortunately, the results are uninterpretable because age was a confounding variable. Therefore, the relation between print-related speech and print-related knowledge is still a matter of speculation. The present research study investigated these issues empirically by assessing preschoolers' knowledge about print and relating it to their print-related questions during shared book-reading episodes.

Because both adults and children talk so infrequently about the print within naturally occurring book readings, it is difficult for researchers to analyze the hypothesized relationship between print-related comments and letter-name knowledge. One way to overcome this problem is to increase print-related talk to an analyzable level by using one of two procedures: collecting data over a vast number of book-reading episodes or experimentally inducing children to make more print-related comments in each book-reading episode. The first procedure leaves the research vulnerable to many potentially extraneous variables and alternative explanations, thereby weakening any relationship found between print-related talk and literacy knowledge. The second procedure eliminates these extraneous variables but, like all experiments, there are limitations to its

generalizability. However, this procedure also allows for the analysis of causal, instead of correlational, data. Considering the alternative as well as the paucity of research on the development of alphabet knowledge, experimental data would be a valuable addition to existing emergent literacy research.

Observational Learning

One highly successful method of increasing behaviors, including specific modes of talking, is through observational learning. "Fortunately, most human behavior is learned by observation through modeling. By observing others, one forms rules of behavior, and on future occasions this coded information serves as a guide for action" (Bandura, 1986, p. 47). Bandura (1986) has defined modeling as a "psychological matching process" (p. 48). This definition is used to differentiate modeling effects from mimicry responses and to emphasize the cognitive, or psychological, component of imitation. A person who observes someone else model a particular behavior does not necessarily recreate a replica, or mimicry, of it but instead cognitively appraises and processes the behavior then uses it as a template for his or her behavior. As delineated by Rosenthal and Zimmerman (1978), "observers

rarely duplicate the model's exact responses, e.g., less than 11% for children (Rosenthal et al., 1970), less than 13% for adults (Rcbert, White, & Rosenthal, 1975) on various conceptual tasks. Most imitation occurs on a more abstract level" (p. 82).

People can learn many behaviors, thought patterns, and skills vicariously through observing other people. Observational learning occurs when an observer abstracts a rule or concept underlying the model's behavior. When a model repeats rule-constant actions across occasions while varying irrelevant responses, people are able to abstract the underlying rule for that class of behaviors. After abstracting a rule, the observer can then use it to act in similar situations (Zimmerman & Rosenthal, 1974b).

In the early 1970's, social cognitive theorists devoted much time and effort to investigating the influence of models and observational learning on children's concept attainment and rule-governed behaviors. Rosenthal, Zimmerman, and colleagues did a series of studies on a whole range of abstract principles. Taken together, these pioneering studies (Rosenthal, Alford, & Rasp, 1972; Rosenthal & Whitebook, 1970; Rosenthal, Zimmerman, & Durning, 1970; Zimmerman, 1974; Zimmerman & Pike, 1972;

Zimmerman & Rosenthal, 1972a; Zimmerman & Rosenthal, 1972b) showed that people, even very young children, can learn abstract principles vicariously. Modeling was shown to be equal or more effective than instructions or reinforcement in inducing a wide variety of behavior changes. Particularly relevant for the present investigation are two studies (Rosenthal, Zimmerman, & Durning, 1970; Zimmerman & Pike, 1972) on increasing question-asking behaviors and another study (Zimmerman, 1974) on changing young children's focus of attention.

Rosenthal, Zimmerman, and Durning (1970) investigated whether children could utilize different forms of the question asking through observing an adult model. They randomly divided 140 sixth-grade students into five groups according to the questioning techniques. Depending on what group the participant was in, he or she observed a model who asked questions pertaining to one of the following: a) nominal or physical characteristics, b) functional uses, c) causal relations, or d) value judgments. The control group did not observe a model. Each training group significantly increased their use of the modeled interrogative class during the imitation and generalization phases. However, their use of the other forms of questions did not

significantly differ from their baseline scores. The authors concluded that "the data demonstrated that induction (from diverse instances) of abstract criteria governing information seeking represents another example of complex, rule-governed behavior readily subject to vicarious modification" (Rosenthal, Zimmerman, & Durning, 1970, p. 686).

Zimmerman and Pike (1972) investigated whether question-asking skills could be taught through modeling and reinforcement to small groups of elementary school students in school-like settings. They randomly assigned 36 second-graders to one of three treatment conditions: praise only; modeling plus praise; or no modeling, no praise control group. The experimenter read a story to a group of children and, depending on the treatment condition, praised the children for asking questions themselves, modeled questioning techniques and praised the children, or neither. The praise only group asked more questions than the control group and the modeling plus praise group asked more questions than did either the praise only or control groups.

Zimmerman (1974) investigated whether young children could change their grouping strategies and their

explanations through exposure to a modeling episode. Each child was shown four pictures. Two had the same object and the other two had a different object (e.g., bird and umbrella). One of each of these two sets of objects was small and the other large. The children were asked to put together the cards that were the same. On the pretest, the vast majority of preschoolers grouped the cards by object, rather than size. Zimmerman (1974) divided 60 preschoolers into four training and one control group. All training groups were exposed to an adult who grouped the pictures by size rather than object. For two of the groups, the model also explained that she was grouping them by size. All training groups showed a significantly larger difference between their pretest and posttest in grouping the pictures according to size. Therefore, this study shows that preschoolers can be induced to pay attention to a different aspect of a stimulus than what they are naturally inclined to do.

These studies have shown that elementary and junior high school children can learn to ask a particular genre of question and that preschoolers can learn to focus on a particular element in a set of pictures. The present study extended social learning research by investigating whether

preschoolers, like the older children, can learn to ask a particular genre of question and whether they can learn to focus on a particular element (i.e., print) in an alphabet book.

Chapter Three -- Hypotheses and Method

Hypotheses

The following hypotheses were investigated:

1. Preschoolers who observe a model ask questions will ask more questions than preschoolers who do not observe a model ask questions.

2. Preschoolers who observe a model ask questions about the print will make more print-related responses than preschoolers who do not observe a model ask questions about the print.

3. Preschoolers who make print-related responses will learn more target letter names than those children who do not make print-related responses during a shared alphabet book reading.

Participants

Participants were preschoolers who attended the Medgar Evers Head Start Program and whose parents signed permission slips (*N* = 127). This program predominately serves low-income families from the African and Hispanic diasporas. Due to confidentiality, the ethnicity of the participants was not ascertained; however, seventy-five percent of the children who attended the Medgar Evers Head Start Program were Black, Non-Hispanic; 22% were Hispanic;

2% were White, Non-Hispanic; 1% were Asian; and 0% were American Indian. Twelve percent of the children enrolled in the Head Start Program did not speak English (2% spoke Haitian Creole and 10% spoke Spanish). While 82% of the children spoke English, many of them also spoke another language, such as Spanish, Haitian Creole, or many Caribbean English Creoles.

The sample consisted of 43 (34%) three-year-olds, 63 (50%) four-year-olds, 20 (16%) five-year-olds. Sixty-five (51%) girls and 62 (49%) boys participated. All participants spoke English.

Children who knew fewer than 6 of the 10 target letters were retained for the study. Fifty (39%) children were excluded because they knew too many target letters. Thirteen (32%) three-year-olds, 27 (49%) four-year-olds, and 10 (67%) five-year-olds knew more than 6 of the 10 target letters. The effect of age was statistically significant, F (1, 109) = 9.59, $p < .01$. As to be expected, the children who were excluded for knowing too many letters (M = 4.3 years, SD = .59) were older, on average, than those who were included (M = 4.0 years, SD = .57). Twenty-eight (48%) girls and twenty-two (42%) boys were excluded.

There was no association between gender and inclusion in the study, X^2 (1, N = 112) = .400, ns.

In addition to those children who were excluded for not meeting the criteria of this study (i.e., fewer than 6 target letters), 15 children were excluded for various other reasons. Six children refused to participate and six children were consistently absent. On one day, the sound component of the videotape malfunctioned; therefore, three children's data were lost. There were age differences between children who were included and those who were excluded for various reasons, $F(1, 74) = 9.85$, $p < .01$. The children who were excluded (M = 4.5 years; SD = .71) were older, on average, than the children who were included (M = 4.0 years; SD = .57). The children who were excluded did not differ statistically from the children who were included on their pretest scores for all 26 letters (M = 3.56; SD = 3.13; M = 2.84; SD = 3.18, respectively) or the 10 target letters (M = 1.11; SD = 1.17, M = 1.32; SD = 1.51, respectively).

Design

This research study utilized a pretest-posttest control group design (Campbell & Stanley, 1963). The independent measure was the preschoolers' treatment

assignment (i.e., print-questions videotape, picture-questions videotape, no-questions videotape, and no videotape). The dependent variables were the number of questions, the number of print-related responses, and scores for individual letters on the posttest letter-name task.

Measures

Four tasks (i.e., alphabet recitation, printing, letter name, and letter-word correspondence) were used to assess the children's letter knowledge before the treatment. Because this research study was concerned with letter-name knowledge only the data from that pretest task was analyzed for the present research. The other tasks will be used in future research. The letter-name task was used after the treatment as a posttest. Test-retest reliability was performed on data for 26 preschoolers who participated in the pilot study. Nineteen children participated in a treatment episode while seven were in the control group. For the whole sample, the test-retest reliability for letter-name knowledge for all 26 letters was .98. For the control group, the test-retest reliability was .97 for letter-name knowledge.

The alphabet recitation task was presented and performed orally. The printing, letter naming, and letter-word correspondence tasks used different sheets of paper with the 26 uppercase letters in 50 pt. Univers font and a second letter "I" in 60 pt. MS LineDraw font. Because the uppercase "I" is commonly typed and written both as I (e.g., Univers font) and I (e.g., MS LineDraw font), both were included in this task. The 10 target letters were ordered randomly within the first 10 positions. The remaining 16 letters were also ordered randomly and came after the target letters. Each task had a different random order for both the 10 target letters and the other 16 letters.

Pretests

Alphabet recitation task. The child was asked to recite the alphabet from memory or sing the ABC song. If the child did not respond, the experimenter began to sing the song, dropping this prompt after the first few letters if the child began to sing also.

Printing task. The child was given a sheet of paper and allowed to choose a pencil. The experimenter named the letters on the Printing Task sheet and asked the child to write them from memory. Copying was not permitted. The

child was required to attempt to print all 10 target letters. After that, if the child missed five letters in a row, the experimenter asked the child to write any other letters that he or she knew.

Letter-name task. The child was shown the sheet of paper titled letter-name task (see Appendix A). As the experimenter pointed to each letter, the child was asked to name it. The child was required to attempt to name all 10 target letters. After that, if the child missed five letters in a row, the experimenter pointed to the whole sheet and asked whether the child could name any other letters.

The response for each letter was tabulated as correct or incorrect. If no response was given, it was counted as incorrect.

Letter-word correspondence task. The child was shown the sheet of paper titled letter-word correspondence task. As the experimenter pointed to each letter, the child was asked to name a word beginning with it. The child was required to attempt to name a word for all 10 target letters. After that, if the child missed five letters in a row, the experimenter pointed to the whole sheet and asked

whether the child could name a word beginning with any of the other letters.

Posttest

The posttest letter-name task tested only the ten target letters. The directions and scoring procedures were the same as for the pretest.

Materials

Alphabet Books

The researcher developed two alphabet books; each consisting of five capital letters repeated five times. A letter (Ariel; 200 pt.) and a written word beginning with that letter (Ariel; 90-150 pt.) were centered on the left-hand page. On the right-hand page was a black-and-white picture of the word's referent. The pictures were printed from various Clip Art computer programs (see appendix B for sample page). Book One (T, B, M, P, D) was utilized for all three videotape episodes. Book Two (H, L, W, G, F) was utilized for the shared book-reading sessions (see Appendix C for letters and words).

Videotapes

Three modeling episodes, each lasting approximately four-and-one-half minutes, were created. Each episode portrayed different interactional patterns between an adult

and a child within a shared book-reading context. A white woman and a white eight-year-old girl served as the models in all three videotapes. Each videotape began with introductions. Then the adult asked the child if she wanted to read a book. Each videotape ended with the adult thanking the child.

Print-questions videotape. On each page, the adult read and pointed to the individual letter and read the word while running her finger underneath it. For instance, she would say, "P, Parrot" while pointing to the letter P then the word Parrot.

On 20 of the pages, the child model pointed to the print and asked a question using one of the following formats: a) "Is this an [P]?", while pointing to the individual letter; b) "This is an [M], isn't it?", while pointing to the individual letter; or c) "Are both of these [B's]?", while pointing to the individual letter and the first letter in the word. The adult reinforced this response by saying, "Yes, good question."

On the other 5 pages, the child first asked a question dealing with the picture (e.g., This is a Parrot, isn't it?) to which the adult responded, "Yes, but what about the letter?". The child then asked one of the three questions

about the print and was reinforced by the adult saying, "Yes, good question."

To enhance the learning of a cognitive rule, it is best not only to model what is appropriate and relevant for that rule but also to "countermodel" an inappropriate response that is vicariously corrected by the adult (Rosenthal & Zimmerman, 1978). By having the adult redirect the child model's attention from the pictures to the print, questions about the print were modeled as appropriate behavior and questions about the picture were countermodeled as inappropriate. These episodes of countermodeling took place within the first half of the alphabet book so that the child model was portrayed as gradually gaining in competence until she was completely accurate at the end. Therefore, the participants might view the child as a coping model.

Picture-questions videotape. On each page, the adult read and pointed to the individual letter, read the word while running her finger underneath it, then read and pointed to the individual letter again. For instance, she would say, "P, Parrot, P" while pointing to the letter P, word Parrot, then letter P again. The child model pointed to the pictures and asked a question using one of the

following formats: a) "Is this a [parrot]?"; b) "This is a [mailbox], isn't it?"; or c) "Are all/both of these [balls]?". The adult always praised the child's response by saying, "Yes, good question.".

In the print-questions videotape, on each page both the adult reader and the child model said the letter so the children in this treatment group heard the letter twice. To equalize the rate of exposure to the letters between treatment groups, the adult read the letter twice (e.g., P, Parrot, P) in both the print-questions and no-questions videotapes.

No-questions videotape. The adult read the book in the exact manner as in the picture videotape. On each page, the adult read and pointed to the individual letter, read the word while running her finger underneath it, then read and pointed to the individual letter again. The child model listened to the adult without speaking.

Procedures

Participants watched the videotapes and were tested individually in an isolated room. During the first session, the pretests were given. Any child who did not meet the criteria (fewer than 6 target letter name) was thanked for participating and was excluded at this time. Those children

who met the criteria were then randomly assigned to one of the four groups.

During the second session, for each of the three treatment groups, each child watched the appropriate videotape then the experimenter read an alphabet book to him or her. After the book-reading session, each child took the posttest. Each child in the no-videotape group participated in the book-reading session and took the posttest.

The third session was the same as the second. For each of the three treatment groups, each child watched the appropriate videotape again then the experimenter read the alphabet book to him or her. After the book-reading session, each child took the posttest. Each child in the no-videotape group participated in the book-reading session and took the posttest.

A possible confound was the seat arrangement. Regardless of treatment, children who sit on the side of the book with the print could comment more frequently about the print than children who sit on the side of the book with the pictures. Therefore, this element was counterbalanced, with approximately half of the children in each of the four groups sitting on the side with the print

and the other half sitting on the picture side. For both sessions, each child sat on the same side of the book.

For all book-reading sessions, the experimenter read and pointed to the letter then read the word while running her finger underneath it. She praised the child by saying, "Yes, good question," if the response was a question. Or, if the response was not a question, she praised the child's response (e.g., "good job", "Yes") or repeated the child's comment (e.g., Yes, you have glasses). To assess the degree to which the experimenter maintained fidelity to the outlined procedure, her reading behavior and responses to the preschoolers were transcribed, by another researcher, for 20% of the participants (13). The experimenter's reading behavior maintained almost perfect fidelity with pointing to the letter at 100% and reading the letter and word at 99% of the time. The experimenter's responses to the preschoolers also maintained a high degree of fidelity with the experimenter praising or repeating the children's responses 97% of the time. Three percent of the experimenter's responses were either answering a question or redirecting their behavior (e.g., Can you put that down, please?).

All book-reading sessions were videotaped and transcribed. The children's responses during the alphabet book-reading sessions were analyzed in terms of pointing, commenting, and questioning. From the transcripts of the videotaped book-reading sessions, each response was coded as either print-related or picture-related. More than one response could be made per page. For example, a child who pointed and asked about the letter received two print-related responses. A child who pointed to the letter, said the letter name, then commented about the picture received two print-related responses and one picture-related response.

The reliability of the coding for question-asking, print-related responses, and picture-related responses was established by having two coders independently code 20% of the participants (13). For each of the three measures, the first researcher's coding of the total number of responses made by each child was correlated with the second researcher's coding of the total number of responses made by each child. All three measures achieved a high level of reliability; r = .99 for question-asking, r = 1.0 for print-related responses; and r = .93 for picture-related responses.

Chapter Four - Results

Introduction

The sixty-two children who met the criteria (i.e., named fewer than 6 of the 10 target letters) were randomly assigned to the four treatment conditions; 16 in the print-questions, 16 in the picture-questions, 15 in the no-questions, and 15 in the no-videotape group. Because of the different natures of the hypotheses under investigation, the participants were grouped together and compared differently for each hypothesis. For hypothesis one, on question-asking, the children who observed the model ask questions (i.e., the print-questions and picture-questions groups) were compared to the children who did not observe the model ask questions (i.e., the no-questions and no-videotape groups). For hypothesis two, on print-related responses, the four treatment groups were compared to each other. For hypothesis three, on letter-name knowledge, the children who made print-related responses were compared to the children who did not make print-related responses.

Overall, the children who were retained for this study knew very few letters, $\underline{M}$ = 2.84 out of 26 letters and $\underline{M}$ = 1.32 out of the 10 target letters (see Table 1). In this sample, most preschoolers knew either zero (24) or one (18)

target letter (see Table 2). Seven preschoolers knew two target letters, six knew three, and three knew four target letters. Only four children knew five of the 10 target letters, the maximum allowed for retention in this study.

Table 1. Number (and Percentage) of Children Knowing Letter Names

	Treatment Groups				
Pretest Letter-names	Print-Questions (n = 16)	Picture-Questions (n = 16)	No-Questions (n = 15)	No-Videotape (n = 15)	Total Sample (N = 62)
All 26	M = 4.25	M = 2.25	M = 2.20	M = 2.60	M = 2.84
Book	M = .56	M = .63	M = .47	M = .53	M = .55
T	2 (13)	0 (00)	3 (20)	3 (20)	08 (13)
B	8 (50)	2 (13)	4 (27)	3 (20)	17 (27)
M	3 (19)	1 (06)	2 (13)	1 (07)	07 (11)
P	4 (25)	1 (06)	2 (13)	1 (07)	08 (13)
D	2 (13)	2 (13)	0 (00)	4 (27)	08 (13)
Video	M = 1.19	M = .38	M = .73	M = .80	M = .77
H	3 (19)	3 (19)	2 (13)	1 (07)	09 (15)
L	3 (19)	2 (13)	1 (07)	0 (00)	06 (10)
W	3 (19)	3 (19)	3 (20)	3 (20)	12 (19)
G	0 (00)	2 (13)	0 (00)	1 (07)	03 (05)
F	0 (00)	0 (00)	1 (07)	3 (20)	04 (07)
All 10 Target	M = 1.75	M = 1.00	M = 1.20	M = 1.33	M = 1.32

Note. M = Mean.

Table 2. Number (and Percent) of Children who Knew Target Letter Names

	PRETEST*		
Children	Book	Video	All Target
0	38 (61)	31 (50)	24 (39)
1	16 (26)	13 (21)	18 (30)
2	06 (10)	06 (10)	07 (11)
3	02 (03)	04 (07)	06 (10)
4	00 (00)	01 (02)	03 (05)
5	00 (00)	00 (00)	04 (07)

* Percentages may not add up to 100 due to rounding.

Question-asking

To determine whether observation of a questioning model during a book-reading session affected children's question asking, the participants were divided into two groups. The groups that observed the model ask questions (i.e., print-questions and picture-questions videotape groups) were combined into a modeled-questions group while the no-questions-videotape and no-videotape groups were combined into the no-modeled-questions group. As predicted, the modeled-questions group asked more questions during both book-reading sessions than the no-modeled-questions group.

Means and standard deviations of all background variables are presented in Table 3. Preliminary analyses of variance (ANOVAs) for age and letter knowledge and a chi-

square for gender revealed no significant differences in the number of questions asked during either book-reading session due to gender, age, or beginning letter knowledge of the children, nor any significant interactions among these variables or between them and the modeling groups. The average age of the modeled-questions group (M = 4.12 years) was older than the no-modeled-questions group (M = 3.84 years), F (1, 59) = 3.72, p = .059. Because this difference approached significance and the true treatment group was older than the control group, this variable was used as a covariate.

Table 3. Means (and Standard Deviations) for Background Variables and Number of Questions

	Treatment Group		
	Modeled-Questions (n = 32)	No-Modeled-Questions (n = 30)	F (1,56)
Gender	13F, 19M	18F, 12M	
Age (years)	4.12 (0.58)	3.84 (0.54)	3.72
Letter-Names (10 max.)	1.38 (1.60)	1.27 (1.44)	0.08
Questions			
Session 1	3.75 (7.11)	0.20 (0.76)	6.62*
Session 2	6.22 (9.19)	0.20 (0.81)	11.52***

Note. F = Female; M = Male; max. = maximum
* $p < .02$
*** $p < .001$

Question-asking during both book-reading sessions (BR1 and BR2) was analyzed with a multivariate analysis of covariance (MANCOVA) using age as the covariate. The two modeling groups constituted the treatment factor. The MANCOVA yielded a significant between-group difference, Wilks' lambda = .83, $F(2, 57) = 5.76$, $p < .01$. Univariate F tests (ANCOVAs) yielded significant between-group differences on BR1, $F(1, 58) = 6.62$, $p < .02$; and BR2, $F(1, 58) = 11.52$, $p < .001$. The modeled-questions group asked significantly more questions than did the no-modeled-questions group at both BR1 and BR2.

A total of 21 children, out of 62, asked at least one question which was similar to the modeled questions. Seventeen children were in the modeled-questions group while four were in the no-modeled-questions group. These children asked a total of 333 questions during both book-reading sessions, with the modeled-questions group asking 315 (95%) questions and the no-modeled-questions group asking 18 (5%) questions. Only 31 (9.3%) of the 333 questions were exact duplicates of the modeled questions and all of these were asked by six children in the modeled-questions group. Although three different styles of questions were modeled during the videotapes, the children

only duplicated one style. All 31 questions were in the style of "Is this a [Parrot]?".

Seventeen children (53%) in the modeled-questions group asked at least one question. ANOVAs and correlations were conducted on this subsample to determine whether any background variables were related to question asking. The main effects and interactions for gender and age were not statistically significant. Furthermore, pretest letter knowledge was not correlated with question asking during BR1 or BR2. Thus, the children who imitated the model did not differ from the children who did not imitate the model on any background variable.

The amount of question-asking during the two sessions was moderately correlated, $r = .70$. Therefore, children who asked questions in the first book-reading session also tended to ask questions during the second session. For those children who observed a model ask questions ($n = 32$), the average number of questions almost doubled from BR1 to BR2 ($M = 3.75$ to 6.22). This improvement approached significance, paired-sample $t(31) = 1.99$, $p < .06$. The average number of questions asked by the no-modeled-questions group ($n = 30$) was the same during both BR1 and BR2 ($M = .2$). Therefore, children in the modeled-questions

group increased their questioning while the children in the no-modeled-questions group maintained a very low rate of question asking.

Print-related Responses

For hypothesis two, a different grouping of the participants was required. The participants were divided into four groups depending on the videotape they watched: print-questions videotape, picture-questions videotape, no-questions-videotape, and no-videotape. The outcome of interest was the number of print-related responses made during both sessions of book reading.

The means and standard deviations of all background variables and measures are presented in Table 4. Preliminary analysis of the participants as a whole (N = 62; MANOVA with gender, seat arrangement, and age group as factors) revealed a significant main effect for gender, Wilks' lambda = .89, $F(2, 52) = 3.22$, $p < .05$. Univariate F tests (ANOVAs) yielded significant differences between-gender for BR2 only, $F(1, 53) = 4.99$, $p < .05$. Regardless of treatment, girls (M = 18.29, SD = 16.7) made more print-related responses than boys (M = 8.19, SD = 12.54). Therefore, gender was included as a factor in further analyses. There were no other main effects or interactions

for the print-related responses of the participants as a whole.

Table 4. Means (and Standard Deviations) for Background Variables and Print-related Responses

	Treatment Groups			
	Print-Questions (n = 16)	Picture-Questions (n = 16)	No-Questions (n = 15)	No-Videotape (n = 15)
Gender	F = 7: M = 9	F = 6: M = 10	F = 9: M = 6	F = 9: M = 6
Age (years)	4.3 (0.6)[a]	4.0 (0.6)	3.7 (0.6)[b]	4.0 (0.5)
Letter-Names (10 max.)	1.8 (1.8)	1.0 (1.3)	1.2 (1.4)	1.3 (1.5)
Seat Arrangement	Left = 9 Right = 7	Left = 9 Right = 7	Left = 6 Right = 9	Left = 9 Right = 6
All Print Responses				
Session 1	19.8(15.8)	10.3(13.0)	8.7(11.9)	16.7(18.0)
Session 2	14.9(14.3)	9.9(14.5)	10.6(16.6)	17.7(16.9)

Note. Row means with different superscripts differ significantly; $p < .05$; F = Female; M = Male; max. = maximum.

Preliminary ANOVAs for letter knowledge and chi-squares for seat arrangement and gender revealed no significant differences between treatment groups for seat arrangement, gender, or beginning letter knowledge. However, there was a significant difference for age, F (3,

57) = 3.00, $p < .05$. Post-hoc Tukey tests revealed that the print-question videotape group was significantly older than the no-question videotape group. All other groups did not differ. As a result, age was used as a covariate for further analyses.

The number of print-related responses for BR1 and BR2 were analyzed with a MANCOVA using age as the covariate. The four modeling groups constituted the treatment factor and gender was used as an additional factor. No main effects and no interactions reached statistical significance (see Table 4). Therefore, the modeling groups did not differ on print-related responses for either BR1 or BR2.

The amount of print-related responses during the two sessions was highly correlated, $r = .82$. This correlation was similar for all treatment groups (range from $r = .76$ to $r = .94$). Therefore, regardless of treatment, children who made print-related responses in the first book-reading session also tended to make print-related responses during the second session.

Unfortunately, there was a potential confound in the methodology of the alphabet book-reading sessions. Many children mimicked, without apparent understanding, what the

experimenter said. Response mimicry is an exact replica of an observed behavior that is usually close in time (Bandura, 1986). Mimicry denotes an echoic behavioral pattern, such as that displayed by many autistic children who repeat verbatim whole sentences and paragraphs without understanding what they are saying. On the other hand, observational learning denotes a cognitive appraisal of a class of behaviors that is used as a template for future behavioral patterns (Rosenthal & Zimmerman, 1978).

In this study, the children who immediately repeated the letter and word spoken by the experimenter exhibited response mimicry. This occurred despite, or perhaps due to, efforts to standardize the experimenter's comments. To keep the treatments identical except for the videotaped modeling episode, the experimenter restricted her interactions with the children. On each page, she pointed to and read the letter and word. In doing this, the experimenter may have inadvertently cued print-related responses.

At the outset of this study, all print-related responses were assumed to be part of the class of behaviors abstracted vicariously through observational learning. However, as the actual treatment progressed, it became obvious that some children were only mimicking the

experimenter's words. Therefore, this particular print-related response should not be assumed to be an indication of an abstraction of a print-focus rule but rather to be an immediate echoic response. These mimicry responses remain directly dependent on the model's exact cueing response while the rule-based responses should generalize beyond the modeling episode (Rosenthal et al., 1970). For this experiment, the children in the modeled-questions group watched a four-and-a-half minute videotape then participated in a similar shared book-reading episode. To exhibit their vicarious abstraction of the print-focus rule, they were required to generalize the particular class of behaviors modeled in the videotape to a live event with a different adult and a different book. Unlike mimicry, these rule-governed responses did not immediately follow the modeled behavior but rather were separated in time by several minutes, at the very least. Thus, when scoring the data, mimicry of the experimenter's words was distinguished from print responses learned through observation.

This study was designed to investigate whether preschoolers could abstract and perform two different classes of behaviors by observing a child model. The first class of behaviors was general question-asking, which was

investigated in hypothesis one. The second, more focused, class of behaviors involved children's responses regarding individual letters. Whether preschoolers could learn and display this class of behaviors was investigated in hypothesis two.

To assess observational learning of a letter focus as a rule-governed class of behaviors, I excluded pointing at the print during an additional analysis for hypothesis two. Because both the model and the experimenter pointed to the letter, it could not be determined whether pointing to the print was part of the rule "focus on the individual letter" or a mimicry of the experimenter. Therefore, comments and questions about the print were included while pointing was excluded.

All print verbalizations were recoded as one of three categories: letter-focus class, mimicry, or other. Three types of responses were categorized as letter-focus class: 1) questions about the letter (e.g., "That is a P?"); 2) comments about the letter (e.g., "This is a P."); and 3) saying the letter (e.g., "P"). All these were considered members of the letter-focused class because the child focused on the individual letter. In contrast, mimicry was

operationally defined as repeating both the letter and the word (e.g., P, Parrot).

Other print-related responses that did not fall into these two categories were coded as other. For instance, one child said, "Read this." Several children responded with versions of "P for Parrot". Responses of this nature were considered neither mimicry (because "for" was added) nor in the letter-focused class (because the child said the letter and the word, not the individual letter). Only 4% of all print-related responses for BR1 and 2% for BR2 were classified as other.

The number of responses in the letter-focused class for BR1 and BR2 were analyzed with a MANCOVA using age as the covariate. The four modeling groups constituted the treatment factor and gender was used as an additional factor. The MANCOVA yielded a significant between-group difference, Wilks' lambda = .74, $F(6, 102) = 2.74$, $p < .02$ (see Table 5). Univariate F tests (ANCOVAs) yielded significant between-group differences on BR1, $F(3, 52) = 4.26$, $p < .01$; and BR2, $F(3, 52) = 4.36$, $p < .01$. Post-hoc Tukey tests revealed that the print-questions videotape group differed statistically from the other three groups for both BR1 (highest $p < .05$) and BR2 (highest $p < .02$).

The children in the print-questions videotape group focused on the individual letter more often than the children in any other group. The other three groups did not differ from each other.

Table 5. Means (and Standard Deviations) of Letter-related Responses

	Videotape Groups			
	Print-Questions (n = 16)	Picture-Questions (n = 16)	No-Questions (n = 15)	No-Videotape (n = 15)
Letter-Focus Class				
Session 1	4.3(7.2)[a]	0.6(1.3)[b]	0.4(0.6)[b]	0.1(0.4)[b]
Session 2	5.2(8.0)[a]	0.1(0.3)[b]	0.2(0.6)[b]	0.7(1.1)[b]
Mimicry				
Session 1	7.6(9.4)	6.8(8.1)	5.1(7.7)	10.5(10.2)
Session 2	5.9(8.8)	6.9(9.8)	5.9(9.8)	11.3(9.5)
Other				
Session 1	0.4(0.7)	0.6(1.2)	0.5(1.8)	0.1(0.4)
Session 2	0.1(0.5)	0.4(1.3)	0.3(1.1)	0.1(0.3)

Note. Row means with different superscripts differ significantly; $p < .05$.

The number of responses in the mimicry and other categories for BR1 and BR2 were analyzed separately with MANCOVAs using age as the covariate. The four modeling groups constituted the treatment factor and gender was used as an additional factor. No main effects and no interactions reached statistical significance (see Table

5). Therefore, the modeling groups did not differ in mimicry or other print-related responses for either BR1 or BR2.

The number of responses in the letter-focus class during the two sessions was moderately correlated, r = .57. Also, both mimicry and other print-related responses during the two sessions were strongly correlated with themselves (r = .78 and .80, respectively). Therefore, children who made print-related responses during the first session also tended to make the same type of print-related responses during the second session.

Letter-Name Knowledge

For hypothesis three, analyses were conducted to determine whether preschoolers who made print-related responses learned more letter names than preschoolers who did not make print-related responses. The letters of interest were the five letters (H, L, G, W, and F) in the book used for the book-reading sessions. Each letter was analyzed separately because a participant would need to focus on that particular letter to learn it. For each letter, all participants who named that particular letter on the pretest were excluded from the analysis because it is assumed that those children would continue to name the

letter correctly on both posttests regardless of whether or not they made any print-related responses for that particular letter. Therefore, for each individual target letter, first all participants who named the letter on the pretest were excluded. Then the number of print-related responses made for that particular letter during BR1 were related to the score for that particular letter on the first posttest (P1), which followed BR1. Finally, the number of print-related responses made for that particular letter during BR2 were related to the score for that particular letter on the second posttest (P2), which followed BR2.

As a whole (N = 62), regardless of treatment or number of print-related responses, there was no significant increase in letter naming of the five letters in the videotape from the pretest to P1 or P2. There was also no significant increase in letter naming of the five letters in the book-reading session from the pretest to P1. However, the children, overall, showed a significant improvement between pretest to P2, paired-sample $t(60) = 2.12$, $p < .05$. This increase was from a mean of .56 to .75; therefore, less than one-fourth of a letter was learned on

average. Even though this is statistically significant, it is not a meaningful increase.

Preliminary ANOVAs revealed no significant differences in letter-name knowledge for any of the five target letters for either P1 or P2 due to gender or age, nor any significant interactions between these variables. Children's pretest score for any particular letter was not correlated with the number of print-related responses for that particular letter during either BR1 or BR2.

Letter-name scores on P1 and P2 and print-related responses were analyzed using Fisher's Exact chi-square tests for each individual letter separately. Only the number of print-related responses about the letter H during BR2 and the letter H score on P2 was statistically significant, X^2 (1, $\underline{n}$ = 52) = 5.29, $\underline{p}$ < .05. No other variables achieved statistical significance. Because of the number of analyses conducted (10), the significant result for the letter H may be spurious in nature, that is, this particular relationship may be significant due to chance. Therefore, contrary to expectations, making print-related responses about an individual letter did not increase a child's ability to name that letter.

To provide an overall picture of the relationships among all the variables, inter-correlations were calculated (see Table 6). As expected, all letter-name scores (pretest, posttest 1, and posttest 2) were highly correlated. Also, type of response (e.g., letter-related) during BR1 was highly correlated with the same type of response during BR2. Number of questions asked during BR1 and BR2 was positively correlated with number of letter-related responses but negatively correlated with mimicry responses during BR1 and BR2.

Table 6. Correlations Among Measures of Letter Naming, Question-asking, and Print-related Responses

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Pretest														
1. All 26	--													
2. Video	.79[b]	--												
3. Book	.72[b]	.43[b]	--											
BR1														
4. Questions	ns	ns	ns	--										
5. Letter-related	.46[b]	.33[b]	ns	.56[b]	--									
6. Mimicry	ns	ns	ns	-.29[a]	ns	--								
7. Other	ns	ns	ns	ns	ns	ns	--							
Posttest 1														
8. Video	.70[b]	.71[b]	.51[b]	ns	ns	ns	.25[a]	--						
9. Book	.67[b]	.42[b]	.72[b]	.27[a]	ns	ns	ns	.56[b]	--					
BR2														
10. Questions	ns	ns	ns	.70[b]	.39[b]	ns	ns	ns	ns	--				
11. Letter-related	.46[b]	.48[b]	ns	ns	.57[b]	ns	ns	.30[a]	ns	.43[b]	--			
12. Mimicry	ns	ns	ns	-.28[a]	ns	.78[b]	ns	ns	ns	-.32[a]	ns	--		
13. Other	ns	ns	ns	ns	ns	ns	.80[b]	ns	ns	ns	ns	ns	--	
Posttest 2														
14. Video	.75[b]	.76[b]	.44[b]	ns	ns	ns	ns	.84[b]	.57[b]	.37[b]	.39[b]	ns	ns	--
15. Book	.61[b]	.38[b]	.68[b]	ns	ns	ns	ns	.49[b]	.67[b]	ns	ns	ns	ns	.53[b]

Note. ns = non-significant.
[a] $p < .05$; [b] $p < .01$.

Chapter Five -- Discussion

Question-asking

Results of this experiment support the hypothesis that preschoolers who observe a model ask questions can learn to ask questions in shared book-reading sessions. Rosenthal et al. (1970) showed that sixth-graders could increase their use of a specific interrogative class by observing an adult ask questions from that interrogative class. Zimmerman and Pike (1972) demonstrated that second-grade students could learn to ask questions by observing an adult who modeled questioning techniques. The present study found that three-, four-, and five-year-old preschoolers can abstract this interrogative class and utilize it in a rule-governed way to ask questions themselves. Therefore, this study extends this previous social cognitive research downward into the preschool population. Modeling of questioning techniques can be an effective method of increasing question asking in very young children.

Only a small percentage (9.3%) of the questions were exact duplicates of the three types of questions asked by the model. This is very similar to what Rosenthal et al. (1970) reported (less than 11%). Because the vast majority of questions were within the same class of questions but

were not exact duplicates, this shows that these children were able to abstract the rule of question asking then utilize it when faced with a situation similar to the modeled event.

All exact duplicates of the model's questions were of the type "is this a [parrot]?". Not a single child imitated either "this is a [parrot], isn't it?" or "these are both [balls]". Most non-duplicate questions were variations on the first form or shortened versions of the second form (e.g., without the contraction). For example, several children asked, "Is that a [parrot]?" or "That a [parrot]?". Perhaps the first question was imitated and varied more often because it is easier syntactically. Or, they could use this form more often outside this short experiment than the other two forms. It is possible that the first form is an instance of facilitation of a previously learned behavior while the other two forms are novel behaviors; however, this distinction can not be ascertained in this study because none of the children in the control group asked a question similar to any of the three forms. Therefore, future research could investigate this aspect further.

Although children who observed a model ask questions were significantly more likely to ask questions than those children who did not observe a model, there was still great variability within the modeled-questions group. Seventeen (53%) children in the modeled-questions group asked at least one question while 15 children did not. These children did not differ statistically by age, gender, or letter-name knowledge. However, there are social variables, besides personal variables like gender, age, and letter-name knowledge, that could account for these differences in imitation. For instance, children whose parents or teachers model question asking in everyday settings may be more inclined to imitate the model than children who have not been exposed to question asking. Also, children who are frequently read to at home or preschool may learn behavioral patterns more readily within a book-reading episode than children who are read to less frequently. Future research should investigate social interactions between children and parents or teachers, both in book-reading and other interactional settings, and their relationship to children's literacy-related behaviors.

Children who observed a question-asking model asked 15 times more questions during BR1 and 30 times more questions

during BR2 than children who did not observe a model. While the vast majority of preschoolers in the no-modeled-question group did not ask a single question during either book-reading session, preschoolers in the modeled-questions group almost doubled their question-asking from BR1 to BR2. As shown by the control group and as reported by several researchers (Baker et al., 1998; Yaden, 1982; Yaden et al., 1989), children do not spontaneously ask many questions during a book-reading episode. The results of this study, therefore, are especially encouraging because this experiment was very brief, consisting of two approximately five-minute exposures to a videotaped modeling event. If teachers were to model question asking during preschool and parents did so at home, preschoolers would be exposed to an interrogative model at a much higher rate than in this experiment. In the future, researchers could explore more extensive modeling effects of teachers and parents during book-reading episodes at preschool and home.

Print-related responses

Results of this experiment support the hypothesis that preschoolers who observe a model focus on the individual letter can learn to focus on the individual letter within shared book-reading sessions. Zimmerman (1974) found that

preschoolers could be induced into changing their focus of attention and their grouping strategy from object (e.g., small bird with large bird) to size (e.g., small bird with small umbrella). The present study extends this social cognitive research into the realm of literacy acquisition. Modeling a focus on the individual letter can be an effective method of changing very young children's focus of attention from the picture to the individual letter during a shared book-reading session.

Reading researchers (Baker et al., 1998; Bus & van IJzendoorn, 1988; Pelligrini et al., 1990; Phillips & McNaughton, 1990; Yaden, 1982; Yaden et al., 1989) have found that both young children and their family members (predominately mothers in these studies) very rarely make print-related comments while reading storybooks. Although children and adults make more print-related comments with print-salient books, the majority of talk (ranging from 36% to 86% of all comments) still revolves around the pictures. All these researchers observed naturalistic interactional patterns of children and their family members while reading a book. The present study extends this reading research by experimentally manipulating the interaction within shared

book-reading sessions to increase preschoolers' print-related responses.

Although children who observed a child model a letter-focus were significantly more likely to focus on individual letters than those children who did not observe a model, there was still great variability within the print-questions group. These children, on average, made 4.3 letter-focus responses in BR1 and 5.2 in BR2 with standard deviations of 7.2 for BR1 and 8.0 for BR2. Children who made letter-focus responses did not differ statistically by age or gender from children who did not made letter-focus responses. Pretest letter-name knowledge for all 26 letters was positively correlated (r = .46; p < .001 for both BR1 and BR2) with number of letter-focus responses. Therefore, those children who knew more letters at the beginning of this experiment imitated the model's focus on the individual letter more than children who knew fewer letters. However, there were no significant correlations between any particular letter name and responses focused on that particular letter. Perhaps those children who know more letters had a more generalized understanding of the relationship between letters and reading and therefore commented about the letters more often.

Anecdotal evidence provides some support for this contention. Five preschoolers, who were excluded from the analyses in this study because they knew too many letters (M = 17.8), read the alphabet book with me without observing any videotape. One child made only one comment, which was picture-related, during the book-reading session. However, four (80%) of these preschoolers commented on the print on almost every page (ranging from 22 to 25 of the pages). Only six (40%) children in the no-videotape group commented as frequently on the print (ranging from 20 to 25). Therefore, twice as many children who knew most letters commented on the print as did children who knew few letters. Also, the two children who knew the most letters (25 and 26) read most of the pages before I did. Research will be needed to examine this relationship in more detail.

Interestingly, this finding is similar to that of Robbins and Ehri (1994). They found that children who had high vocabulary pretest scores learned more vocabulary words during a shared storybook reading than children who had low vocabulary pretest scores. The present finding showed that those children who already know some letter names may be more capable of learning specific behavioral

patterns within an alphabet book-reading setting than those children who do not know many letter names.

Also, there are social variables that could account for these differences in imitation. For instance, children whose parents or teachers model a focus on print in everyday settings may be more inclined to imitate the model than children who have not been exposed to a print focus. Also, children who are frequently read to at home or preschool may learn behavioral patterns more readily within a book-reading episode than children who are read to less frequently. Future research should investigate social interactions between children and parents or teachers, both in book-reading and other interactional settings, and their relationship to children's literacy-related behaviors.

Letter-name Knowledge

Results of this experiment did not support the hypothesis that preschoolers who made print-related responses would learn more target letter names than preschoolers who did not make print-related responses within shared book-reading sessions. Because letters are graphically abstract and highly confusable, learning the names of letters is not an easy task (Adams, 1990; Ehri, 1986). Perhaps those children who made print-related

responses did not do so enough times to actually learn the letter names. The vast majority of children did not make a comment about the letter each time it was shown and said by the experimenter. The number of children who made print-related responses on all five occurrences of a letter ranged from three children (5%) to eight children (13%), depending on the actual letter. Most children, ranging from 46 children (74%) to 51 children (82%), never made a print-related comment for a particular letter. For example, during BR1, three children made five comments about the letter G while 48 children made zero comments about it. Future research should investigate the number of print-related responses and their impact on letter-name learning.

There are several procedures that, if used, might have enhanced letter-name learning. First, using a book of only one letter that was repeated more frequently (such as The Berenstain's B Book) may more readily facilitate learning that individual letter than the book of five letters repeated five times each that was used in this study. Second, because an important aspect of learning a letter name is knowing its distinguishing characteristics, having the adult reader highlight and discuss those characteristics may enable preschoolers to distinguish the

particular aspects of that letter that set it apart from other letters.

Conclusions

In summary, observational learning was shown to be a highly effective method of changing preschoolers' behavior within shared book-reading episodes. Preschoolers were able to ask questions and make print-related responses after observing a child model those behaviors. However, an increase in print-related responses did not translate into an increase in letter-name knowledge.

This study extends both the social cognitive and emergent literacy research. No previous social cognitive researcher has assessed the impact of observational learning on literacy-related behaviors and knowledge. This study, therefore, extends social cognitive research into the emergent literacy field. Also, previous research (Rosenthal, Zimmerman, and Durning, 1970; Zimmerman & Pike, 1972) has shown that elementary school children can learn to ask a particular genre of question through observing a model ask questions. Therefore, this study extends this research downward into the preschool population.

This study extends previous research on emergent literacy in several ways. The majority of previous

researchers (Baker et al., 1998; Bus & van IJzendoorn, 1988; Pelligrini et al., 1990; Phillips & McNaughton, 1990) investigating speech patterns within shared book-reading episodes have looked at the interactions of parent-child dyads with minimal experimental structuring. Some of these studies have denoted differences in the frequency and type of parental comments and questions (Baker et al., 1998; Bus & van IJzendoorn, 1988; Pelligrini et al., 1990) and some have documented differences in frequency and type of comments and questions by young children (Baker et al., 1998; Bus & van IJzendoorn, 1988, Yaden, 1982; Yaden et al., 1989).

Depending on the purpose of their study, the researchers have concluded that differences in the type and frequency of questions and comments are due to different genres of book (narrative vs. expository; Bus & van IJzendoorn, 1988; Pelligrini et al., 1990; Yaden, 1982 1982; Yaden et al., 1989, 1989) or the dyad's familiarity with the book (Baker et al., 1988, Pelligrini et al., 1990). Another potential cause of differences in children's speech patterns is the adult readers' speech patterns. Only Yaden (Yaden, 1982; Yaden et al., 1989) considered it to be a possible influence and as a result he attempted to limit

the parents' type of speech (no questioning) in his research. In the other studies, the adult's behavior was free to fluctuate and may have impacted children differentially. Thus, child outcomes may have been due to parent processes rather than personal ones. Parents may mediate the interaction between the child and the book. For instance, while reading a narrative book (e.g., storybook), parents tend to ask questions and make comments almost exclusively about the meaning and the pictures whereas, during an expository text (e.g., alphabet book), they ask more questions and make more comments about the print. Therefore, whether children comment about the meaning or the print may be due not only the genre differences but also because the differences in parental speech patterns. Because these studies did not investigate the influence of differential parental speech patterns on the children's speech patterns, this variable must be considered a potential confound.

The present study adds to the research on shared book-reading interactions by investigating, experimentally, one potential influence on children's speech patterns while controlling for the reader's speech patterns, along with the genre and familiarity of the text. The effects of

observational learning was investigated by analyzing children's behaviors and speech during book-reading sessions directly after watching a videotaped model. Genre and familiarity were controlled by utilizing an alphabet book (expository text) which was developed expressly for this study (unfamiliar). The experimenter's behavior while reading the book to the children was controlled by restricting her speech to reading the book and praising the child for all comments.

Interestingly, even though the adult's behavior was structured to decrease its possible impact on the children's behaviors, its influence was still powerful. During the book-reading sessions, many children mimicked the adult by repeating her statement verbatim. However, after these mimicry responses were excluded, and because three potential confounding variables (book genre, familiarity with the book, and adult's skill level at interacting with child) were controlled, causal inferences can be made that observational learning increases children's question asking, in general, and their commenting about the print, specifically.

Therefore, one of the strengths of this study was the high degree of control that was introduced and maintained.

Both the modeling event and the book-reading episode were highly standardized to decrease the number of extraneous variables potentially affecting the outcome.

On the flip side, the high level of standardization may also have limited the potential effectiveness of the observational learning event. Although using a videotaped model guaranteed that all children observed exactly the same interaction, it led to a time lag between the modeled event and the observers' reactions. This can greatly diminish vicarious learning with preschoolers (Rosenthal & Zimmerman, 1972). Also, preschoolers may be less likely than older children to transfer the context of a videotape to their own immediate environment.

Another tradeoff between controlling extraneous variables and enhancing potential effects involved the amount and type of feedback given to the participants as they interacted during the two book-reading episodes. To keep the experimental groups as similar as possible, except for their exposure to the videotaped modeling events, the experimenter consistently praised all comments made by the participants. Again, this increased experimental control at the expense of potential learning effects. Social cognitive research (e.g., Rosenthal & Zimmerman, 1978) has shown that

modeling plus feedback is generally more effective than modeling alone.

Because this was a preliminary study, a high degree of experimental control was introduced. Even though this high level of experimental control potentially decreased the effects of the training, strong differences due to exposure to the videotaped models were found for both classes of behaviors investigated.

Even stronger effects might be found by utilizing more powerful types of modeling than was used in this study. For instance, interactive modeling and social feedback could be utilized. The experimenter could model a focus on the print, or question asking, within a book-reading episode then have the child respond. The experimenter would praise the preferred response, and correct through modeling an incorrect response. In doing this, the book-reading session would actually become the modeling treatment. The chances of the child extracting the rule-governed behavior increases because the child is exposed not only to vicarious learning through modeling but direct learning through corrective feedback.

Even stronger effects might also be found by increasing the number of times children observe the

modeling event and participate in the book-reading episode. The exposure to both these activities was brief, only twice. Although many children did imitate the model, their rate of imitation might have increased if the treatment was continued. Also, those children who did not imitate the model at all during these two episodes might have learned to do so if the treatment was continued. As with imitation, if children participate in more book-reading sessions, they might increase their letter-name knowledge more than was shown for this study.

For several reasons, caution should be taken before generalizing the findings of this study to all young children. First, this study looked specifically at preschoolers attending a Head Start Center. Also, many of the participants spoke both English and another language (e.g., Haitian Creole, Spanish). Children who do not attend preschool usually have less opportunity to interact with peers than children who attend preschool; therefore, preschoolers may more readily learn from a child model than children who do not attend preschool. In general, middle-income and upper-income families tend to have more books, higher parental education, and more literacy-rich environments than lower-income families. Therefore,

children from middle- to upper-income families may interact differently during a book-reading episode than the participants in this study. Young children who speak only English may differ in their ability to abstract rules or classes of behaviors from an English-speaking model than young children who are dual-language speakers. They, also, may learn English letter names quicker.

Second, this study looked specifically at preschoolers who did not know many uppercase alphabet letters. Preschoolers who know the letters could potentially differ in their ability to abstract rules or classes of behaviors during a book-reading episode. This potential difference is especially valid for the class of letter-focus behaviors. Those children who know most letters could potentially abstract this principle during a book-reading episode quicker than those children who know few letters.

Educational Implications

The findings of this study will be important for teachers, parents, and educational researchers. This study has shown that very young children can learn to ask questions and make print-related comments by observing a child who models these behaviors. Therefore, teachers, parents, and educational television companies (e.g.,

Children's Television Workshop) could utilize videotaped or live children to model literacy-related behaviors and concepts. Teachers and parents, themselves, could also model question asking and talking about the letters, both while reading books and on various other occasions. They should read aloud to preschoolers daily. While reading, they can point to the print, especially during alphabet, and other print-salient, books. Finally, teachers and parents could encourage young children to ask questions and made comments about letters, again, both while reading books and on various other occasions.

Appendix A

Letter-Name Task

T D G M L

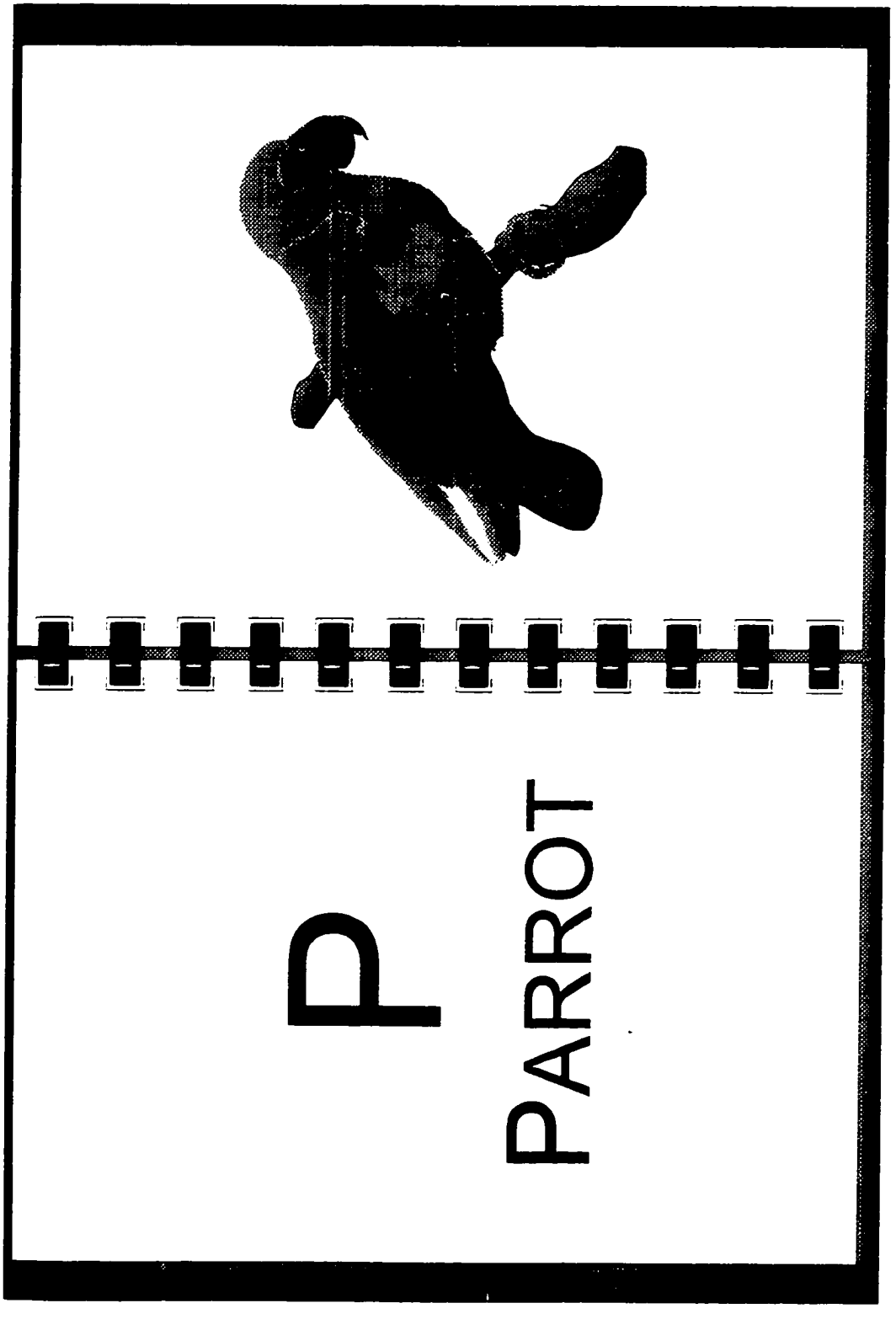
P F H B W

A K Z O J U

I C Y Q N S

X I E R V

Appendix B



Appendix C

Letters, Words, and Pictures in Alphabet Books

Videotapes		Shared book reading	
Letter	Word/Picture	Letter	Word/Picture
T	Television	H	Hamburger
T	Tractor	H	Horse
T	Turtles	H	Hammers
B	Baby	L	Lion
B	Bus	L	Leaves
B	Balls	L	Ladybugs
M	Microphone	W	Watch
M	Mouse	W	Whistle
M	Meat	W	Watermelons
P	Pencil	G	Glasses
P	Pig	G	Grasshopper
P	Presents	G	Grapes
D	Dog	F	Fly
D	Drum	F	Fish
D	Ducks	F	Flowers
T	Train	H	Hotdog
T	Tricycle	H	Hippo
B	Butterfly	L	Lamp
B	Balloons	L	Llama
M	Money	W	Windmill
M	Mailbox	W	Woman
P	Parrot	G	Glove
P	Pie	G	Giraffe
D	Dragon	F	Family
D	Dump Truck	F	Fire Fighter

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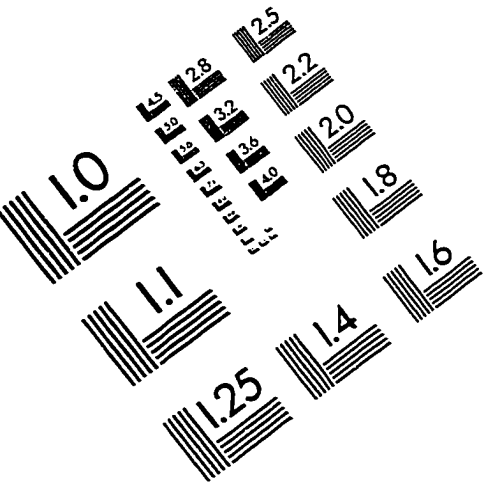
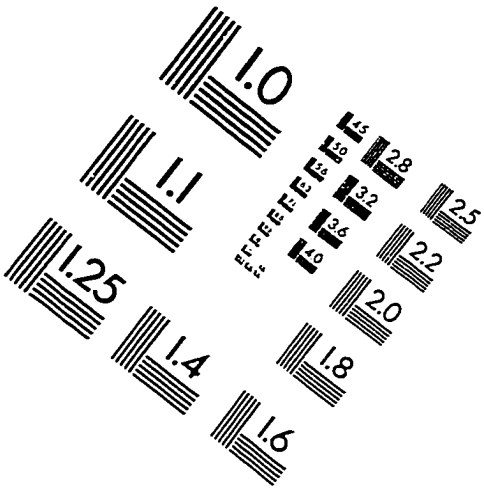
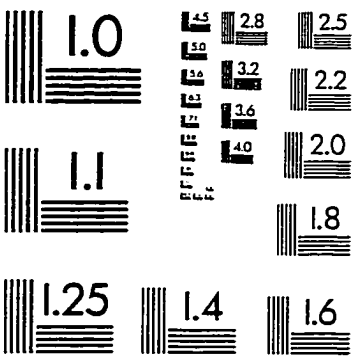
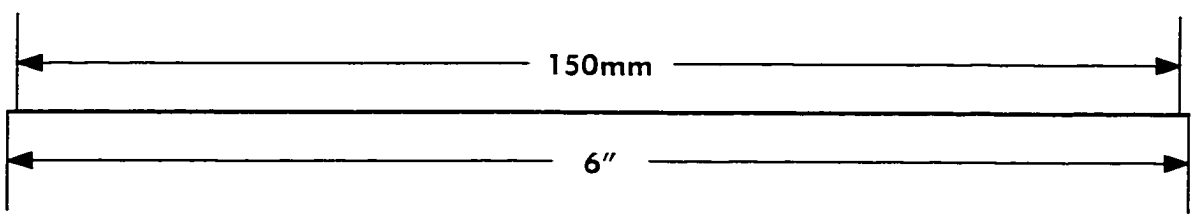
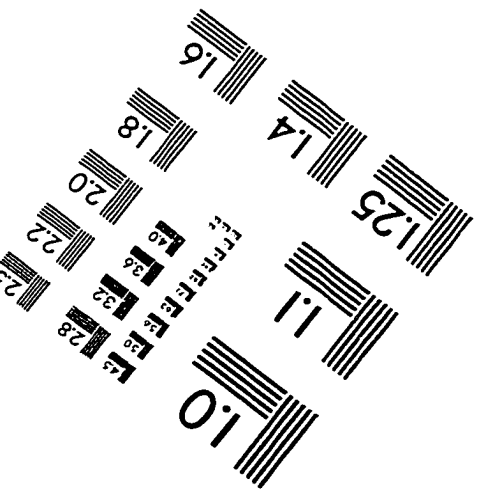
IMAGE EVALUATION TEST TARGET (QA-3)

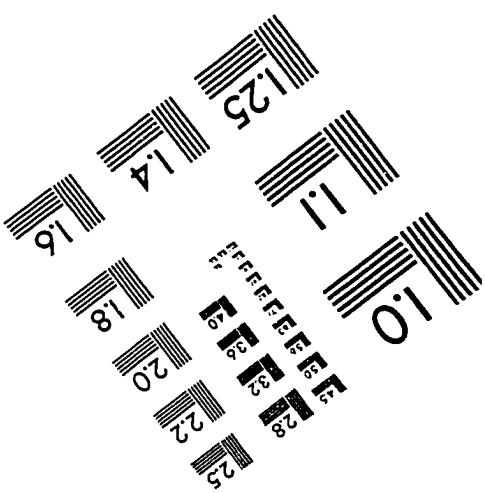












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