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The Development of Print Awareness in Four-Year-Old Children

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THE DEVELOPMENT OF PRINT AWARENESS IN FOUR-YEAR-OLD CHILDREN

by

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ABSTRACT

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by

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Participants for this study were 56 four-year-old children and their parents. All children were enrolled or on a waiting list to be enrolled in a preschool program in the Cache Valley area. A parent questionnaire and environmental assessment were utilized to determine whether a) the physical environment, b) behaviors of parents, and c) birth order of children is related to development of print awareness as measured by a print awareness test.

A variety of statistical analyses was used to explore relationships among the above variables. Major findings suggest that the behaviors that reflect parents' attitudes regarding literacy are most important in the development of their children's print awareness. Fathers' use of the library and mothers' education are significantly related to their children's performance on the Print Awareness Test. The amount of time that children spend watching videos is also significantly correlated to their Print Awareness Test

scores. Significant differences were found in what mothers and fathers do to prepare their children for reading, with mothers taking a more active role in reading to the children and teaching them literacy skills.

Other notable findings suggest that the reading pleasure of each parent is important to their children's enjoyment in being read to and to creating positive feelings about reading. Parents tend to predict that their children will learn to read at about the same ages as they themselves learned to read.

(87 pages)

CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Recently, researchers have become aware of how much young children know about written language (Lomax & McGee, 1987; Ferreiro, 1986; Hiebert, 1981). In an effort to understand the development of literacy, researchers have focused their attention on the preschool years, when the foundations for literacy are being laid. Literacy development is an appropriate way to describe what has previously been referred to as reading readiness, beginning reading, beginning writing, or language learning (Teal & Sulzby, 1986). The term "print awareness" will be referred to in this research as a child's explicit understanding of the communicative function of written language. "Literacy development" will be used to encompass all language development, written, oral, and visual.

The broad purpose of this research was to examine the foundations of print awareness in 4-year-old children. The specific research problem addressed in the current study is that of more fully exploring the role that the home environment plays in the development of print awareness. The research questions focused on the relationships between developing print awareness and the following three variables: physical environment, behaviors of parents reflecting their attitudes regarding literacy, and ordinal position of a child within a family.

It was hypothesized that the physical environment of the home would be related to a child's development of literacy.

Specifically, an environment that is rich in literacy materials was hypothesized to have a positive effect upon a child's development of print awareness. It was also predicted that the behaviors of parents that reflecting their attitudes regarding literacy would be correlated with the child's development of literacy. Moreover, it was posited that the parents' interest in literacy would have a positive effect upon a child's development of print awareness. Finally, the ordinal position of a child within a family was hypothesized to be related to the development of print awareness. Specifically, it was predicted that the status of a firstborn child would have a positive effect upon a child's development of print awareness.

CHAPTER II

REVIEW OF THE LITERATURE

Print Awareness

Print awareness, the knowledge of "why people read and what they do when they read" is the foundation of literacy (Kontos, 1986, p. 58). This basic knowledge is essential as a first step in being able to interact with print in our environment. As soon as young children become aware of the fact that print is meant to be read and is a vehicle of meaning, they have the foundation necessary for the understanding and use of print.

The development of print awareness begins very early. Many times this development is overlooked as print is interwoven into much of our daily lives. Marcia Baghban (1984), the author of a case study of her daughter, Giti's, learning approaches to oral and written language, first observed and recorded an interest in print in Giti at 18 months. Giti begin to notice grocery lists and messages written by the phone and wanted to produce her own lists and messages. By 20 months, Giti began to distinguish print, as she consistently identified the yellow M for McDonald's whether it stood alone or with other letters.

This early development of print awareness continues and greatly increases throughout the preschool and early elementary-school years (Huba, Robinson, & Kontos, 1989). Huba and her colleagues (1989) noted, in their research on prereaders' understanding of the

purposes of print, that the knowledge children have of print increases significantly from the beginning to the end of the preschool period. Moreover, this knowledge continues to increase through the second grade, as children add to and modify concepts about print. Huba and Kontos (1985) found that a developmental progression in performance was indicated in the results of the Print Awareness Test (PAT) administered to children from 3 through 5 years of age and a group of second graders. The ways in which children responded to questions on the Print Awareness Test as well as the number of correct responses changed in relationship to the ages of the children (Huba et al. 1989).

Awareness of print has been found to be well established in 4-year-olds (Hiebert, 1981; Huba & Kontos, 1985). Hiebert (1981), in a study that examined patterns and interrelationships in the development of print awareness over the preschool years, found the performance of 4-year-olds indicates a knowledge of the processes involved in using print and knowledge about the purposes of print. Through her research, Hiebert has suggested that many preschoolers may know more about print than earlier research has revealed. In the Hiebert study, 3-, 4-, and 5-year-old children were shown four books. Each book was different: one contained just pictures, another pictures and print, another book contained just print, and the last book was blank. All of the children recognized that the book with just print could be read. By using more concrete contextualized situations whereby children could <u>show</u> rather than <u>tell</u> what they

knew, Hiebert was able to gather additional evidence regarding preschool children's knowledge about reading processes. Hiebert found that young children learn about print from "environmental experiences which provide information about print in a meaningful context" (p. 256). There appears, in Hiebert's results, to be no general or specific sequence to gathering information about print, even though the acquisition of skills and concepts appears to develop in an integrated fashion. Hiebert's study also suggested that many individual differences are present as demonstrated by the variation among same-age children.

Huba and Kontos (1985), during the course of the development of the Print Awareness Test, found that 4-year-olds have a basic knowledge of the function of print. From analyzing the results of the PAT, these authors were able to show that 4-year-olds do understand why print is used and how it is used. Another group of 4-year-olds were administered the PAT in the research of Huba, Robinson, and Eltinge (1989), and the same results occurred: 4-year-olds once again demonstrated understanding of the communicative function of print.

The knowledge that children develop through becoming aware of print provides guidelines for experimenting with words and letters (Mason, 1980). In her research with 4-year-old children, Mason conducted an assessment of young children's letter- and word-reading competencies in an attempt to discover when children begin to read. The results suggest a "natural hierarchy of knowledge development in learning to read words" (p. 203). Based on her research, Mason

posited that the development of literacy is a process of continuing modification of concepts, as children try out their hypotheses and accept or revise their ideas about words and letters and their relationships.

Print Awareness and the Environment

Young children have numerous opportunities to learn about print. Our environment is filled with the settings, signs, and implements of a print-oriented society (Goodman & Goodman, 1979). Print is part of storefronts, traffic signs, billboards, television commercials, and containers of various kinds. Children's television programs such as "Sesame Street," "The Electric Company," and "Reading Rainbow" present print and related information. Adults and older siblings read to young children, write for them, and play games with them that use print-related materials. Toys, such as magnetic boards with plastic letters, chalkboards, and records or tapes with follow-along books, provide additional opportunities for gaining knowledge about print.

Young children in a literate society such as ours grow up with literacy as an integral part of their personal, familial, and social life (Schickedanz, 1982; Mason & Allen, 1986). But the basic early learning about print that takes place during the preschool years is often overlooked. Schickedanz (1982) indicated that some of the basic knowledge acquired is about distinguishing print from pictures, book handling, specific print sequences, directionality, some letter names and key features, and the basic function of books, letters, and

newspapers. Mason and Allen (1986) viewed this early learning about print as occurring through the self-directed efforts of the child.

Goodman and Goodman (1979) believed that children learn about literacy in the same natural way that they learn to speak and listen and for the same reason. To understand and be understood is a basic natural need, and the discovery that written language can be a vehicle for communication is motivated by this need. Through interactions with their environment, children often invent their own literacies, and their inventions often parallel the inventions of society.

Preschoolers discover how print is organized and used through a "self-learning process" out of the need to communicate and interact with others (Goodman, 1980). Through her research, Goodman has found that literacy is a natural process that develops in response to the creative, active participation of the individual trying to make sense out of the world. Goodman found that young children began to read print embedded in environmental settings and even in connected discourse before they became aware of the relationships of the labels, letter and word, to reading and writing. It is early experiences with print, Goodman believed, that begin to lay the groundwork for the young child's attitudes toward and understanding of reading.

Young children experience literacy primarily as a social process during their preschool years (Teal, 1986). Taylor (1986), in exploring how literacy is woven into the daily life of the family, found that experiences with literacy are a natural part of family

life. The home and family play significant roles in a young child's orientation to literacy since it is a primary socializing influence during these early years. Teal's (1986) research, addressing the relations between home background and preschool children's literacy development, found that young children's introduction to literacy is the product of adult-child and sibling-child interactions that occur most often within the family setting.

Trelease's (1985) book about the importance of reading to young children expresses the same reasons for reading aloud to young children as for talking to them: "to reassure, to entertain, to inform or explain, to arouse curiosity, and to inspire" (p.1). Being read to creates or strengthens positive attitudes about reading and writing, awakens imagination, and improves language skills.

Trelease believed that too often adults begin teaching children how to read before they have communicated to them the desire to read. Young children imitate much of what they observe in others. Reading to young children brings pleasure and enjoyment to children and the adults. Through this shared experience, the importance of reading is communicated to children.

Sulzby (1985) conducted a developmental study of children's emergent reading of favorite storybooks. Through her research, Sulzby found that the development of print awareness is enhanced through interaction with favorite storybooks. She suggested that children sort out oral and written language relationships in activities such as storybook reading. Sulzby discovered that what children learn through storybook reading can be detected by asking

the child to read a favorite book. She found characteristics of written language in children's storybook reading speech that include "wording that is more appropriate for written rather than oral discourse and intonation patterns that sound like reading rather than conversing or storytelling" (p. 479).

In investigating the reading of stories to preliterate children, Mason (1986) found that reading and talking about a story establishes connections between oral and written language structures. She believes that reading and talking about a story is an essential key because interpretations, clarifications, explanations, and relationships to the child's background and experience are drawn naturally by the reader. Storybook reading also acquaints children with information about written language forms and structures and presents strategies for reading by establishing print and speech relationships. Mason suggests that "if children have been read to frequently at home, they are comfortable with decontextualized language in general and the particular language of the story before them".

Wells' (1982) research on story reading and the development of symbolic skills indicates that stories read aloud to and parent conversations with 3-year-olds are significantly associated with oral language ability and knowledge of literacy of 5-year-olds and reading comprehension 7-year-olds. From analyses of recordings of spontaneous conversations and stories read aloud in 3-year-olds' homes, Wells constructed an oral-language profile of the 32 children

in the study. Wells found that this profile predicted the children's scores on oral comprehension tests administered on entry to school at age 5 and reading comprehension at age 7. Wells concluded that the preschool years are important to reading achievement and that being read to is one of the important links.

Parental Attitudes and Behaviors Concerning Literacy

Moon and Wells (1979), in their study of the influences of the home on learning to read, found parental attitudes regarding literacy and the quality of parents' interactions with their preschool children to be important prerequisites of literacy. These investigations followed a group of 32 children from 18 months to 10 years of age. Data were collected through parent-child conversations, parent interviews, child interviews, and evaluations by teachers and researchers. These investigators found that parent interest in literacy, parent quality of feedback, and significant richness of interaction with preschool children influence later reading ability.

Mason (1986) found, in examining home characteristics, that conversations in the home, reading materials, and cultural activities contribute directly to the literacy foundation of young children. Based on a 2-year study of 100 children who were tested at the beginning and end of the kindergarten and first grade, Mason suggested that a child's ability to react to written language features is based upon early experiences in the home. Data suggest that parents support for literacy and their children's early

involvement in it, have an effect upon the ability of the children to learn to recognize and spell words in kindergarten. The degree of parents' support of literacy and the children's early involvement also influence performance in word reading in first grade. Mason concluded that all reading activities, most of which occur in the home, contribute to children's knowledge of print and their development of literacy.

Ordinal Position Within the Family

Ordinal position within the family may influence with whom one interacts and thus play a differentiating role in development (Baskett, 1984). All types of development, including that of literacy, may be influenced by a child's birth order within the family. While no studies to date have examined ordinal position with regard to print awareness, patterns of interaction within families and the roles different family members play in the social process of literacy development may have a varying effect upon the very young child.

Abramovitch, Corter, and Lando (1979) noted a strong tendency for siblings to play together. Even when other options are available within the home, siblings prefer to play together for long periods of time. Younger siblings seek and receive "help" from older siblings and imitate them playing together. The family members who most often respond to young children's requests for information, read to

them, and engage in literacy activities with the children may influence the knowledge and type of skills acquired.

Summary

Perhaps no other aspect of learning is emphasized more in our culture than learning to read and write. This compelling issue has become more important as society has increasingly demanded higher levels of literacy achievement (Mason, 1986). As a result, parents and teachers have given top priority to literacy (Kontos, 1986). A question often raised is, "What will benefit preschool children most in building a foundation for literacy?"

The most important question underlying research on preschool literacy acquisition is whether or not preschoolers' awareness of print is related to later success in reading instruction. It seems logical that children who understand the communicative purposes of print are more likely than others to make sense of the details about reading instruction, but until recently, research has not conclusively supported this hypothesis.

A notable study by Huba and her colleagues (1988) indicated a relationship between preschool literacy concepts and subsequent reading achievement. Preliminary evidence concerning the relationship between understanding the purposes of print and reading achievement was provided in a recent study by Huba and Kontos (1985). In their study, poor readers in the second grade performed significantly worse on the PAT than normal second-grade readers. The poor readers did have some understanding of the purposes of print

but had not reached the ceiling level that most normal second-grade readers had achieved.

A longitudinal study of children who were part of the 1985 investigation was conducted by Huba and her colleagues (1989). The subjects were given Form 7 of the Iowa Tests of Basic Skills (ITBS), which is related to reading comprehension (Hieronymus, Lindquist & Hoover, 1978). The subjects' scores on the ITBS were compared with their scores on the PAT. A direct significant relationship between the preschool scores on the PAT and the scores on the ITBS was found (Huba et al., 1989). The results suggest that preschoolers' understanding of the purposes of print seems to be a reasonably good indication of their later reading achievement.

The results of this research stress the necessity of investigating the development of print awareness during the preschool years. A firm theoretical framework is vital designing beginning instruction that will build upon young children's existing knowledge and their naturalistic learning strategies (Hiebert, 1981).

It has been suggested by Goodman (1980) that learning to read and write is as natural as learning to talk if the right kind of environment is present. This is supported by the fact that children have acquired considerable knowledge about print prior to entering school (Hiebert, 1981). Children learn about print in the same manner in which they learn about other aspects of their world. They form, modify, and continually test their theories about print and written language (Mason, 1980). This continuous process is influenced by "the quality of incidences upon which one can draw"

(Taylor, Blum & Logsdon, 1986, p. 7). Thus, the development of these concepts would seem to be influenced by quality of environment.

Several of the researchers cited in this review have explored relationships between the environment and print awareness. Sulzby (1985), Mason (1986), and Wells (1982) have found relationships among the presence of books, reading to preschool children, and the development of print awareness. Other researchers have noted relationships between parents' behaviors and print awareness. Teal (1986), Taylor (1986), and Mason (1986) suggested a relationship between the social interactions of the parents and the development of print awareness of preschool children. Moreover, Moon and Wells (1979) found a relationship between parents' attitudes toward literacy and the reading ability of their children. Other researchers have explored the possibility that ordinal position does make a difference in a child's development. Baskett (1984) and Abramovitch et al. (1979) explored the ordinal positions of children within families with regard to differentiating development.

Although relationships have been found in the aforementioned research, to date no research on print awareness has taken into consideration a combination of home environmental variables, behaviors of parents, and ordinal positions of the children. Therefore, this study focuses on the relationships between developing print awareness and the physical environment, behaviors of parents that reflect their attitudes regarding literacy, and the ordinal positions of the children within the families. It was hypothesized that the physical environment of the home would be related to the

children's development of print awareness. It was also predicted that the behaviors of the parents that reflect their attitudes regarding literacy would be correlated with the literacy development of children. Finally, it was hypothesized that the ordinal position of a child within a family would be related to the development of print awareness.

CHAPTER III

METHODS

Subjects

Subjects for this study included fifty-six 4-year-old children and their parents. The children ranged from 47 to 58 months of age ($X = 53$, $SD = 2.979$). The 12 firstborn girls and 14 firstborn boys and 16 laterborn girls and 14 laterborn boys were found through the help of the Utah State University Child Development Laboratory, the Utah State University Children's House, the Melody Lane Pre-School, the Montessori Valley School, and the Joy School. The children were enrolled in preschool programs or were on waiting lists to be enrolled. All participants spoke English as a first language.

Activities in the programs in which the children were enrolled included the normal range of preschool activities such as painting and other art activities; self-selected activities with puzzles, blocks, dress-up clothes; and outside activities. Some activities involved the identification of children's names, letters, numbers, and shapes, but none of the programs included any formal instructional curricula for teaching reading or writing.

The participating children were members of maritally intact, middle- and upper-middle-class families, most scoring in the middle- and upper-middle-class range on the Four Factor Hollingshead Index of Social Status (Hollingshead, 1975) with a minimum SES score of 20 and a maximum of 66 ($X = 49.893$, $SD = 11.135$). An SES score is derived for each parent based upon education, occupation, sex, and

marital status. Of the 56 mothers in this sample, 30 (53.6%) were not employed outside of the home. Participants are listed by SES category in Table 1.

Table 1

SES Strata, Scores, and Percentages for Participating Parents

SES Strata	Score	Percent
Machine Operators, Semiskilled workers	20	2
Skilled Craftsman, Clerical, Sales Workers	31-36	14
Medium Business, Minor Professional, Technical	40-53	49
Major Business and Professional	56-66	37

With the exception of three children, all of the children in this study had older and/or younger siblings in their families ($X = 2.196$, $SD = 1.939$). Ten siblings were reported in one family. A wide age range was evident among the participating parents, with mothers ranging from 24 to 45 years of age ($X = 32.563$, $SD = 5.124$) and fathers ranging from 26 to 47 years ($X = 34.393$, $SD = 4.901$).

Design

A field design was used in this research. There was no attempt to manipulate variables because this study was concerned with the

naturalistic ways children learn about print. A correlational design was applied to the variables so that the interrelationships among variables could be examined. It was expected the results would show a positive relationship between the development of print awareness and physical environments in which there exists an abundance of literacy materials, behaviors of parents that indicate positive attitudes toward literacy, and firstborn children.

Instruments

Three instruments were employed for data collection in this investigation. The Print Awareness Test (PAT) (Huba & Kontos, 1985) is an individually administered 15-item test (see Appendix A). The first 5 items is a series of problems with pictures of possible solutions. Five points are possible in the first section, with 1 point given for each correct response to a problem. Each problem has three possible solutions. In one solution the picture presented, in which the problem is solved efficiently by the use of print, represents the correct answer. In another solution the picture presented, in which print plays no part represents a less efficient solution. The third picture is of an irrelevant activity. A sample item follows: "Tom's mom wants to shop at Miller's Department store. How can she find out which store is Miller's?" Possible solutions include pictures depicting the following: "a) buy a hamburger and eat it, b) look at the sign outside each store, c) go in every store and ask someone" (Huba & Kontos, 1985). Points are not given for the less efficient or the irrelevant solution.

The second 5 items of the test are questions about situations in which print is used. Five points are also possible, with 1 point given for each correct response. One- or two-word phrases are required of the child in answering these items. A sample item is: "Mom is baking a cake. She needs to know how much water to put in the bowl. How does she find out how much water she needs?" Several correct responses are possible. A correct response must contain a print-related term such as a) recipe, b) on box, or c) marks on measuring cup (Huba & Kontos, 1985). Points are not given for responses that do not contain a print-related term.

The last 5 items concern of a choice between two large index cards, one on which a picture is presented and the other on which a sentence is written. The child is asked, for example: "Which one of these is a story about a teddy bear?" (Huba & Kontos, 1985). The child is shown a picture of a teddy bear and a written sentence about a teddy bear to choose between. Five points are also possible for this last section, with 1 point given for each correct choice. The 5 points possible for each subsection are added to make a total of 15 points possible on the PAT.

Reliability of the PAT has been determined in several ways. The PAT was extensively piloted by Huba and Kontos with 137 preschool children from 3 to 5 years of age in Ames, Iowa; Greeley, Colorado; and Littleton, Colorado. Forty-one second-grade children in Greeley, Colorado and 24 second-grade children in Albany, New York,

were also administered the PAT. The PAT has yielded scores with an internal consistency reliability across age groups of .85 (Huba & Kontos, 1985). This measure has also yielded a test/retest reliability of .91 (Huba & Robinson, 1985).

Validity was assessed by Huba and Kontos (1985) in three ways: a) by obtaining evidence of developmental progression of scores with age, b) by obtaining information that the PAT could differentiate between children known to differ in acquisition of reading skills, and c) by obtaining correlations with test scores and other prereading measures. In the early piloting stages, Huba and Kontos found significant age differences in scores, discrimination between groups of children whose success with reading varies, and correlation with other prereading measures in assessing validity (Huba & Kontos, 1985).

In this study, the PAT was piloted with a sample of twenty 4-year-old children. The PAT was administered to a child and rated independently and simultaneously by researchers to test for interrater reliability. This procedure was repeated until interrater reliability of 100% was achieved.

The Parental Orientation Towards Literacy Profile (POTLP) (Glover & Lindauer, 1988b) is a 30-item questionnaire, that mothers and fathers were asked to complete independently (see Appendix B). The first 12 items assess adult literacy interests through such criteria as number of books read and frequency of reading newspapers and magazines. A Likert scale ranging from 1 to 5 (1 representing a

little pleasure and 5 a lot of pleasure) is included to assess adult reading pleasure.

The second section of the questionnaire consists of 18 questions that assess literacy interactions between parents and children. Questions involving the amount of time that a parent spends reading to the child or participating with the child in literacy-related activities are included in this section. Parents are also queried about the amount of time the child spends watching TV and the child's favorite TV program in this section. Likert scales assess the pleasure that the child receives from being read to and the pleasure that the parent hopes the child will receive once he has learned to read.

Data on the POTLP were given numerical values by a research assistant according to codes that had been established for the reduction of data. To establish codes, all of the possible responses for each question were listed and a number was assigned to each response. To check for interrater reliability, data were coded independently by another rater with the percentage of agreement equal to 98%.

The POTLP was developed for this study based upon the work of Mason (1986), Taylor (1986), Sulzby (1985), and Teal (1986). The POTLP was initially evaluated by four child-development and reading specialists for face validity. Their suggestions and comments were incorporated into the revisions of the instrument. The POTLP was piloted prior to use in this study with a group of twenty 4-year-old

children attending the Utah State University Child Development Laboratory and their parents. After completing the questionnaire, parents were queried for suggestions, and revisions were undertaken in accordance with suggestions. To examine for test/retest reliability, a group of 20 parents of 4-year-old children was given the POTLP at the Utah State University Child Development Laboratory. Two weeks later, the same group of parents was given the POTLP again. A test/retest reliability of .91 or more for each question was achieved. To examine for interrater reliability, the POTLP was independently coded by three researchers. An interrater reliability of 100% was achieved.

The Home Environmental Assessment (HEA) (Glover & Lindauer, 1988a) consists of 10 questions in two sections: adult print materials and child print materials (see Appendix C). The first section is composed of 3 questions assessing the presence of adult literacy materials in the home. In this section, parents are asked to estimate the number of adult novels or information books as well as daily newspapers and adult magazines that are present in the home.

The second section consists of 7 questions assessing the presence of child print materials as well as the visibility of the child's name in written or printed form in the home. Toys that provide opportunities for the child to learn about print and the availability of writing materials are also assessed.

The HEA was developed for this study based upon the work of Mason (1986), Taylor (1986), Sulzby (1985), and Teal (1986). It was evaluated prior to its use by four child-development and reading specialists for face validity, and changes were made according to their recommendations. The HEA was piloted with a group of twelve 4-year-old children and their parents in their homes. The homes were rated using the HEA individually and simultaneously by two researchers, to test for interrater reliability. An interrater reliability of 100% was achieved. After completing the HEA, parents were queried for suggestions, and revisions were undertaken in accordance with suggestions. To examine for test/retest reliability 10 homes were rated a second time, two months after the first rating using the HEA. A test-retest relability of 80% was achieved.

Procedures

Following approval by the Utah State University Institutional Review Board, initial contacts with families were made. An information letter (see Appendix D) explaining the study and the involvement of the child and parents was sent to the parents of all children enrolled in each school. In the letter, parents were invited to contact the investigator if they were interested in becoming involved in the study. Ten families responded to the information letter, contacting the investigator by phone. Telephone contacts were made with 90 families in order to further explain the project and answer any questions that might have inhibited

participation. Three of the 90 families elected not to participate. From the 97 families who were interested in participating, the sample was selected based on the age, gender, and birth order of the child.

Upon obtaining approval from the families, further study information, an informed consent form (see Appendix E), and the Parental Orientation Toward Literacy Profile (POTLP) (Glover & Lindauer, 1988b) were mailed to each family. Parents were asked to thoroughly read the study materials, sign the informed consent form, and individually complete the POTLP without consulting one another. They were then contacted to set up an appointment for a researcher to make a home visit. The completed consent form and POTLP were collected when the researcher made the home visit. The home visit was set up at the convenience of the parents at a time when the child was awake and present in the home. Both parents were requested to be present; however, in 14 families, this was not possible.

After a brief introduction, literacy materials in the home were assessed by the researcher by completion of the Home Environmental Assessment (HEA) (Glover & Lindauer, 1988a). During the approximately 30-minute home visit, the researcher completed the HEA starting with question 1 and proceeding in given order. If educational materials and or toys were not visible to the researcher, children and parents were asked about their presence or absence. Also at the home visit, the child was administered the Print Awareness Test (PAT) (Huba & Kontos, 1985). The PAT was presented to each child in a one-to-one quiet setting with the

parents present. The PAT was presented in a standardized format (Huba & Kontos, 1985) to all of the children in this study. The PAT is designed to be given in the order in which it is written, with the researcher starting with question 1 and proceeding through the PAT. The researchers followed this order exactly with each child in this sample.

CHAPTER IV

RESULTS

From the data obtained in this investigation, questions and responses from the three instruments were selected to examine children's awareness of print. Specific relationships were explored betweem the physical environment and attitudes of the parents as reflected in literacy behaviors, ordinal position of the child within the family, and the development of the child's awareness of print.

Print Awareness Test

The Print Awareness Test (PAT) (Huba & Kontos, 1985) was administered to all of the children in this sample. As explained earlier, it is divided into three sections: PAT -1) problems with picture solutions, PAT -2) open-ended questions about situations in which print is used, and PAT -3) choices between written sentences and pictures (Huba & Kontos, 1985). A total score is recorded for each child as well as a score for each section of the PAT. There are 15 points possible, 5 points for each section. Total scores in this study ranged from 0 to 14 ($X = 8.089$, $SD = 3.609$). Subsection scores ranged from 0 to 5 (PAT-1: $X = 2.893$, $SD = 1.485$; PAT-2: $X = 2.089$, $SD = 1.599$; PAT-3: $X = 3.107$, $SD = 2.033$). The scores for all of the children in the sample on each section of the PAT as well a total score for each child are reported in Table 2 (firstborn males), Table 3 (firstborn females), Table 4 (laterborn males), and Table 5 (laterborn females).

Table 2

Print Awareness Total Test Scores (PAT-T), and Scores for Section One (PAT-1), Two (PAT-2), and Three (PAT-3) for Firstborn Males

PAT-T		PAT-1		PAT-2		PAT-3	
Score	%	Score	%	Score	%	Score	%
13	9	5	20	3	21	5	43
13	9	5	20	3	21	5	4
11	13	3	25	3	21	5	43
11	13	5	20	4	18	2	11
11	13	4	14	4	18	3	9
10	9	4	14	3	21	3	9
10	9	3	25	2	14	5	43
8	13	2	25	1	18	5	43
8	13	4	14	0	23	4	11
6	7	2	25	0	23	4	11
6	7	3	25	0	23	3	9
6	7	4	14	1	18	1	5
1	2	0	7	0	23	1	5
0	2	0	7	0	23	0	21

Table 3

Print Awareness Total Test Scores (PAT-T), and Scores for Section One (PAT-1), Two (PAT-2), and Three (PAT-3) for Firstborn Females

PAT-T		PAT-1		PAT-2		PAT-3	
Score	%	Score	%	Score	%	Score	%
14	2	5	20	5	5	4	11
13	9	3	25	5	5	5	43
12	7	4	14	3	21	5	43
12	7	3	25	4	18	5	43
11	13	2	25	4	18	5	43
10	9	5	20	3	21	2	11
9	13	3	25	1	18	5	43
9	13	0	7	4	18	5	43
8	13	1	9	4	18	3	9
8	13	2	25	1	18	5	43
8	13	5	20	3	21	0	5
5	7	3	25	1	18	1	5

Table 4

Print Awareness Total Test Scores (PAT-T), and Scores for Section One (PAT-1), Two (PAT-2), and Three (PAT-3) for Laterborn Males

PAT-T		PAT-1		PAT-2		PAT-3	
Score	%	Score	%	Score	%	Score	%
13	9	3	25	5	5	5	42
11	13	2	25	4	18	5	42
11	13	5	11	2	14	4	11
10	9	2	25	3	21	5	43
9	13	4	14	2	14	3	5
7	4	5	11	2	14	0	21
5	7	2	25	3	21	0	21
5	7	2	25	3	21	0	21
4	2	2	25	0	23	2	11
3	5	3	25	0	23	0	21
3	5	1	9	2	14	0	21
3	5	1	9	0	23	2	11
2	7	1	9	1	18	0	21
2	7	2	25	0	23	0	21

Table 5

Print Awareness Total Test Scores (PAT-T), and Scores for Section One (PAT-1), Two (PAT-2), and Three (PAT-3) for Laterborn Females

PAT-T		PAT-1		PAT-2		PAT-3	
Score	%	Score	%	Score	%	Score	%
13	9	5	20	3	21	5	43
12	7	3	25	4	18	5	43
12	7	3	25	4	18	5	43
11	13	5	20	2	14	4	11
10	9	2	25	3	21	5	43
9	13	3	25	1	18	5	43
9	13	4	14	0	23	5	43
9	13	3	25	1	18	5	43
9	13	3	25	1	18	5	43
8	13	5	20	1	18	2	11
8	13	2	25	4	18	2	11
7	4	2	25	0	23	5	43
6	7	4	14	2	14	0	21
5	7	1	9	0	23	4	11
2	7	2	25	0	23	0	21
2	7	0	7	2	14	0	21

Independent t tests were run on the PAT scores to determine whether age, gender, or birth order are related to the children's scores. The results indicate a significant difference between males and females, with males scoring significantly higher on the PAT-3 ($t(54) = 2.03$, $p = .04$). There were no significant differences between males and females for the other two sub-scales, PAT-1 and PAT-2, or for the total PAT (PAT-T) score. However, a significant difference was also found between older and younger children, with older children scoring higher on the PAT-2 ($t(54) = -2.11$, $p = .03$). Age did not emerge as a significant variable in other comparisons for PAT-1, PAT-3, or PAT-T. No significant differences were found in birth order for any of the subscores or for the total score. Interestingly, mothers' level of education is significantly and positively correlated with children's scores on the PAT-1 and PAT-2 (PAT-1: $r = .2463$, $p = .34$),; (PAT-2: $r = .2885$, $p = .16$). In this sample, mothers with higher levels of education had children who performed better on the PAT-1 and PAT-2.

Parental Orientation Toward Literacy Profile

Parental responses to the Parental Orientation Toward Literacy Profile (POTLP) (Glover & Lindauer, 1988b) indicate that all mothers and 51 (91.7%) fathers regularly read to their children. Paired t tests indicates that not only do mothers read more to children than fathers ($t(55) = -2.23$, $p = .02$), they are more likely to read fairy tales, poems, and nursery rhymes ($t(55) = 2.18$, $p = .03$) and to include

magazines, newspapers, signs, and labels in their reading ($t(55)=4.15$, $p<.001$).

A paired t test revealed that the mothers and fathers in this sample read to their children at significantly different times of the day. Mothers are more likely to read to their children in the morning ($t(55)= 2.63$, $p=.01$) and in the afternoon ($t(55)=3.42$, $p=.01$). Mothers and fathers are equally likely to read to their children during evening hours. Since 50% of the mothers in this sample stay at home with their children during the day, it is understandable that they are more likely to read to the children during the day.

The average time per day that a child spends watching TV varies greatly within this sample, ranging from 0 to 300 minutes ($X = 90.875$, $SD = 57.757$). The reported times that children spend watching videos per week also show tremendous variation, with a range of 0 to 840 minutes ($X = 163.339$, $SD = 163.520$). However, no significant differences as a function of age, gender, or birth order emerged for time spent watching TV or videos.

Because of the wide variety of time spent watching videos, the responses were divided into two groups: a) children who watch 1 hour and 45 minutes per week or less and b) those who watch 2 hours per week or more. This is a logical break because no families reported their children watch between 105 and 120 minutes of videos per week. The PAT scores of these two groups were compared using an independent t test. Significant differences were found on PAT-1 ($t(54)= 2.22$, $p=.03$) and PAT-T scores ($t(54)=2.12$, $p=.04$). The

children in this sample who spend less time per week watching videos are significantly more likely to have higher scores on the PAT-1 and PAT-T. No other significant differences were found for this sample in terms of the amount of time children watch TV or videos.

The mothers in this study reported learning to read between 4 and 7 years of age, with 71.4% learning to read at age 6. Similarly, fathers reported learning to read between ages 3 and 7. Seventy-three percent (73.2%) learned to read at age 6. The ages at which mothers and fathers learned to read is significantly correlated with the age at which they hope their children will learn to read (mothers' r=.2274, p=.01; fathers' r=.3236, p=.01).

Parents rated their personal reading pleasure as adults using a Likert scale ranging from 1 to 5, with 1 representing little pleasure and 5 a lot of pleasure. Mothers' reading pleasure scores range from 2 to 5 ($X = 4.089$, $SD = 0.805$). Interestingly, 44.6% of the mothers rated their reading pleasure as 4. Mothers' reading pleasure is highly correlated both with the pleasure their children receive from being read to (r=.2730, p=.02) and the pleasure the mothers hope the children will receive once they learn to read (r=3762, p=<.001). Mean parental reading pleasure scores, estimates of children's pleasure from being read to, and estimates of children's predicted pleasure after learning to read are reported in Table 6. All parental reading pleasure scores, estimates of children's pleasure from being read to, and estimates of children's predicted pleasure after learning to read are reported in Appendix F.

Table 6

Mean Parental Reading Pleasure Scores, Estimates of Children's Pleasure from Being Read To, and Estimates of Children's Predicted Pleasure After Learning to Read*

Variable	Firstborn Males (N=14)	Laterborn Males (N=14)	Firstborn Females (N=12)	Laterborn Females (N=14)
Parental Reading Pleasure				
Mothers' Mean:	4.6	3.9	4.1	4.2
Fathers' Mean:	3.6	3.8	3.7	4.1
Estimate of Children's Pleasure from Being Read To				
Mothers' Mean:	4.4	4.3	4.5	4.4
Fathers' Mean:	4.3	4.2	4.6	4.2
Estimate of Children's Pleasure After Learning To Read				
Mothers' Mean:	4.3	4.1	4.5	4.3
Fathers' Mean:	4.1	4.3	4.5	4.4

*Each variable rated on 5-Point Likert Scale Ranging From No Pleasure (1) to Great Pleasure (5)

For further analysis, the sample of mothers was split into two groups: those who receive a lot of pleasure from reading (pleasure score 4 and 5) and those who have lower levels of pleasure (pleasure scores 1, 2, 3). Mothers who receive the greatest pleasure from reading are significantly more likely to currently be reading a book ($t(54)=4.77$, $p=.01$), to facilitate their children's regular use of the library ($t(54)=-2.72$, $p=.01$), and to spend more time per day reading to their children ($t(54)=3.41$, $p=.01$).

Fathers' reading pleasure scores range from 1 to 5 ($\bar{X} = 3.696$, $SD = 1.025$). When fathers' reading pleasure scores were split into two groups, those who receive a lot of pleasure from reading (scores 4 and 5) and those who express lower levels of pleasure (1, 2, 3), several significant differences were found. Fathers who receive the greatest pleasure from reading read more magazines per week ($t(53)=-2.31$, $p=.01$), use the library on a regular basis ($t(53)=2.15$, $p=.03$), and facilitate library use of their children ($t(54)=-2.11$, $p=.04$). In addition, this group of fathers spends more time reading to their children ($t(54)=-2.11$, $p=.04$).

Twenty of the fathers and 31 of the mothers in this sample reported regular monthly use of the library. It seems that more children than parents use the library, as parents reported that 35 children use the library on a regular basis. Independent t tests indicate that younger ($t(54)=2.43$, $p=.01$), firstborn ($t(54)=2.26$, $p=.02$), and male children ($t(54)=-2.23$, $p=.03$) are more likely to use

the library on a regular monthly basis. Reported monthly library use for mothers, fathers, and children is shown in Appendix G.

T tests indicate that the two groups are significantly different in some ways when the children in this sample are divided into two groups (those who use the library on a regular monthly basis and those who do not). Children who use the library regularly have mothers who report higher levels of reading pleasure ($t(53)=-2.89$, $p=.01$). Also, children who are regular users of the library scored significantly higher on the PAT-1, ($t(52)=2.67$, $p=.01$) PAT-2 ($t(52)=4.31$, $p=.01$), and PAT-T ($t(52)=3.13$, $p=.01$).

No significant differences were found between mothers who use the library on a regular basis and those who do not. However, when fathers were divided into two groups (those who regularly use the library and those who do not), several significant differences were found. Fathers in this sample who use the library regularly have significantly higher reading pleasure scores ($t(53)=2.78$, $p=.01$). Children in this sample who have fathers who use the library scored significantly higher on the PAT-1 ($t(53)=2.52$, $p=.01$), and PAT-T ($t(53)=2.91$, $p=.01$).

One section of the questionnaire queries parents regarding what they are doing to prepare their children for reading. Responses of the parents are included in Table 6. Some differences appear in what mothers report they are doing, and what fathers report they are doing to prepare their children to read. Mothers in this sample are more likely to teach their children to write ($t(55)= 3.10$, $p=.01$) and use visual aids ($t(55)=2.42$, $p=.01$) in preparation for reading.

When the sample was split, independent t tests on boys and girls indicated that fathers are more likely to encourage boys to make up and tell stories ($t(54)=-2.12$, $p=.03$) in preparation for reading than girls. Fathers, however, do not differ as a function of child gender. When the sample is divided into firstborn and laterborn children, it appears that fathers ($t(54)=2.77$, $p=.01$) are more likely to teach firstborn children to sound out letters and spell as preparation for reading than laterborn. No further differences were found in what parents are doing to prepare boys and girls to read.

Home Environmental Assessment

Child print materials are readily available to the children in all of the homes in this sample as reported on the Home Environmental Assessment (HEA) (Glover & Lindauer, 1988a). In all of the homes, children's books were visible, with 55 out of 56 homes having children's books at the children's level. Forty-six (82%) of the homes have children's magazines present and available at the children's level. In 39 (69%) of the homes the children's names are visible to the children on a daily basis in written or printed form. In addition, a wide range of children's books (ranging from 1 to 450) were found in the homes in this sample ($X = 96.625$, $SD = 83.316$).

Table 7

Percentage of Mothers and Fathers Indicating Each Response to the Question: "What Are You Currently Doing to Help Your Child Become Ready to Read?"

Response	Mothers (n=56) %	rank of	Fathers (n=56) %	rank of
Reading to/				
Listen to Child "Read"	68	1	57	1
Teaching to Write	59	2	32	3
Visual Aids	29	4	13	4
Preschool	16	5	7	6
Access to Books	5	7	5	7
Teaching to Sound Out Letters/Spell	45	3	36	2
Setting Example/ Praising	11	6	11	5
Encouraging to Make Up/ Tell Stories	5	7	7	6

No relationship was found between the child print materials as defined on the HEA and performance on the PAT.

Educational toys are also present in the homes of each child in this sample. In 43 (76.8%) of the homes, magnetic letters are present, and in 29 (51.8%), alphabet puzzles are present. In 54 (78.6%) of the homes, printed letters, numbers, and alphabet flash cards were found. Chalkboards are available in 49 (87.5%) of the homes, and records or tapes with follow-along books are present in 54 (96.4%) of the homes. Computers are available in 36 (66.1%) of the homes. No relationships were found between educational toys in the home and children's performance on the PAT.

Writing materials are readily available to almost all of the children in this sample. Children's pencils and crayons are present in all of the homes, with paper on which the children can write found in all but one of the homes. Fifty-four (96%) of the families have a special place in their homes where writing materials are kept. No relationships were found between writing materials and performances on the PAT.

Independent t tests comparing the home environments of boys and girls revealed that boys are more likely than girls to have numbers of various kinds, such as plastic numbers, present in their homes ($t(54)=-1.99$, $p=.05$). No other significant differences were found with respect to gender or in comparing the home environments of older/younger or firstborn/laterborn children for writing materials, educational toys, or child print materials.

Adult literacy materials in the home are also assessed through the HEA (Glover & Lindauer, 1988a). Of the homes in this sample, 40 (71.4%) subscribe to a daily newspaper, and all subscribe to magazines that are read by adults. A wide range (from 0 to 800) of adult novels or information books are present in the homes (X = 201.929, SD = 184.617). No significant relationship was found between adult literacy materials and children's performances on the PAT.

CHAPTER V

DISCUSSION

The purpose of this study was to examine the foundations of print awareness in 4-year-old children. The specific research problem was exploring the role the home environment plays in the development of print awareness. The relationships explored were between print awareness and the following home environmental variables: physical environment, the behaviors of the parents that reflect their attitudes, and the ordinal position of a child within a family. This discussion will provide conceptual interpretations of the data using evidence from the literature review presented in Chapter II.

Print Awareness Test

The results of the PAT indicate significant differences in gender, with males scoring significantly higher on the PAT-3. Huba and Kontos (1985) did not find any significant gender differences in their extensive piloting of the PAT. In our sample, however, males seem to have a better understanding of the use of the print concepts in PAT-3 (i. e., print and its relationship to written stories, letters, and messages) than females. This unexpected difference is not evident in either of the other sections of the PAT (PAT-1, PAT-2) or in the total scores. Male children in our sample use the library on a more regular basis than females, which might explain their higher ability to understand print in many written forms.

Age in months was found to be a significant variable on the PAT-2, as older children score higher. The second section of the test appears to have been the most difficult for the children in this sample. As reported, the PAT-2 has a lower mean score than the PAT-1 or the PAT-3. Age does not appear to be a significant variable in the PAT-1, PAT-3, or the PAT-T. It is not surprising, however, that older children with more experience have a better understanding of the concepts explored in the PAT-2 (i.e., the role print plays in activities such as cooking, ordering from a menu, and identifying the giver of a present). Huba and Kontos (1985) found age to be significant in their piloting of the PAT with children from 3 to 5 years of age, whose scores increased as their ages increased. The PAT is designed to indicate developmental differences, and, therefore, the test itself is likely responsible for the age differences found in this sample.

Mother's level of education is significantly correlated with children's scores on the PAT-1 and PAT-2. Mothers in this sample with higher levels of education tend to have children with higher levels of performance on two of the three sections of the PAT. This investigation did not include mothers' education in the variables considered in the relationship between the development of print awareness and home environment. It is certainly possible, however, that the level of education attained by the mother influences not only attitudes about literacy within the home but also the materials to which children are exposed in and out of the home.

It was initially predicted that the ordinal position of a child within a family would have an impact upon the development of print awareness. Results from this study did not support this hypothesis, as birth order does not appear to have an effect upon children's performances on the PAT. Although Baskett (1984) found that ordinal position within a family influences with whom one interacts and thus possibly plays a differentiating role in development, it apparently does not impact the print awareness of children in this sample. There is an indirect relationship, however, as firstborn children are more likely to use the library on a regular basis, which is related to higher scores on PAT-1, PAT-2, and PAT- T. Children in this sample represent a wide range of birth order positions within their families. All children who are not firstborn are recorded as laterborn children. Some of the laterborn children were from families with only one other child, while others were from families with as many as nine other children. Perhaps the wide range of laterborn children makes it difficult to assess differences in literacy development.

Parental Orientation Toward Literacy Profile

It was initially predicted that behaviors reflecting support of literacy by the parents as measured by the POTLP would show a positive relationship with development of print awareness as measured by the PAT. The results only partially support this hypothesis.

There are few significant differences between mothers' behaviors and children's scores on the PAT. This is perhaps due to the fact that there were few differences reported by mothers in this sample with regard to educating their children about literacy. For example, mothers in this sample seem to sense the importance of reading to their children and participating in educational activities with them, which they all reported doing on a daily basis. Many researchers believe that the daily interaction a child has with a parent in being read to and exploring literacy activities is a vitally important link in literacy development (Hiebert, 1985; Taylor, 1986; Trelease, 1985; Mason, 1986). Mothers in this sample appear to consistently provide literacy opportunities for their children. Mothers report reading more to their children than fathers and also include more variety in their reading, including poetry, fairy tales, nursery rhymes, magazines, newspapers, signs, and labels.

In this sample, 53% of the mothers are not employed outside of the home. Perhaps this explains why they tend to be more involved in daily literacy activities with their children than fathers. Mothers also read to their children more in the morning and afternoon hours than do fathers. However, no differences were found in mothers and fathers reading to their children during the evening hours.

Fathers' behaviors tend not be as consistent across the sample as are mothers'. For example, five fathers in this sample reported that they do not spend any time during a 24-hour period reading to

their child. It would be interesting to know if these fathers regard reading to their children as unimportant or if they perceive it as an activity that only their wives have or made time for. Ordinal position does have an effect on the time that fathers spend reading to their children, with fathers of firstborn children reporting that they spend more time reading to their children. Time spent reading to children per day does not seem to have a direct effect on performance on the PAT, perhaps because every child in this sample is read to on a daily basis.

Use of the library on a regular monthly basis by the fathers in this sample did not appear to have an impact on their children's print awareness development. Children of fathers who use the library on a regular monthly basis scored significantly higher on the PAT-1, PAT-3, and PAT-T. Trelease (1985) believes that observed and/or shared literacy experiences are very important in communicating reading pleasure to young children. Perhaps the regular use of the library by the father as observed by or shared with their children enhances the development of print awareness in these children.

The children's use of the library also has an effect upon the children's performances on the PAT. Children who regularly use the library scored significantly higher on the PAT-1, PAT-2, and PAT-T. It is important to note that children's regular use of the library not only positively influences their scores on the first section of the PAT (PAT-1) but also on the most difficult second section of the PAT (PAT-2) as well as on their total score (PAT-T). It is evident

that important learning is taking place when children visit the library on a regular basis. The literacy interactions that take place between a parent and child in a library setting seem to be of the quality that Moon and Wells (1979) refer to as important informational prerequisites to literacy.

Children in this sample who use the library regularly tend to have fathers who read to them and mothers who have high levels of reading pleasure. Apparently, families that use the library on a regular basis express higher interest in literacy. Regular use of the library seems to be woven into the daily lives of these families, and, as Taylor (1986) indicated, this activity plays a significant role in young children's orientation to literacy. Firstborn children in this sample reportedly use the library on a regular monthly basis more than laterborn children. Moreover, regular library use is related to higher scores on the PAT-1, PAT-2, and PAT-T.

Some differences were found in what mothers and fathers reported they are doing to prepare their children to read. Mothers are more likely than fathers to report that they are teaching their children to write their names and numbers and to trace letters in preparation for reading. Mothers are also more likely to report using visual aids such as games, flash cards, and computers to prepare their children to read. Once again, it is the mothers in this sample who are more involved in literacy activities and more inclined to diversify those activities than are fathers.

The ages at which the mothers and fathers in this sample learned to read does not seem to have an effect upon their children's performances on the PAT. It is, however, correlated to the ages at which parents expect that their children will learn to read. It was surprising to learn that, even though the public has become more aware of literacy and children are learning much through educational toys, computers, and renewed emphasis on reading, parents think that their children will learn to read at the same ages at which they learned to read.

Reading pleasure scores (as measured on Likert scales from 1 to 5) for parents and children are highly correlated. Although mothers' and fathers' reading pleasure scores do not seem to have a significant effect upon the children's PAT scores, they are highly correlated both with the pleasure the parents believe children receive from being read to and the pleasure the mothers hope they will receive once they have learned to read. It appears that the pleasure that parents receive from reading is transferred to the children. Children in this sample who reportedly enjoy being read to are members of families in which the parents enjoy reading. The amount of pleasure received from reading by parents is important, as Trelease (1985) indicates, in communicating to children a desire to read and the importance of reading. This pleasure in reading is not only transferred directly to a children in terms of the pleasure received from being read to but will have a long-range effect upon the pleasure the parents perceive that children will receive from learning to read. Since young children imitate much of what they

observe in others (Trelease, 1985), it is logical that when they observe reading as a pleasurable experience, they too will learn to enjoy being read to and eventually reading themselves.

Mothers in this sample who receive the greatest pleasure from reading are more likely to be reading books, helping their children use the library, and spending more time per day reading to their children. Mothers' reading pleasure is significant, as it is directly related to library use, which is related to higher scores on the PAT-1, PAT-2, and PAT-T. Fathers who receive the greatest pleasure from reading are more likely to read more magazines per week, facilitate library use by the children, and spend more time reading to their children. Fathers' reading pleasure is also indirectly related, through regular use of the library, to the children's performance on the PAT-1, PAT-2, and PAT-T. Teal (1986) described literacy learning as a social process during the preschool years. It is easy to see that as relationships between reading pleasure affect library use and time spent reading to children, parents' reading pleasure may be an important key to later reading success.

A significant effect of birth order was found in reading pleasure scores, with mothers of firstborn children more likely to report greater pleasure from reading and to perceive their children as receiving a greater amount of pleasure from reading once they have learned to read. This increased pleasure is important as it is related to library use by the children, which is related to higher PAT-1, PAT-2, and PAT-T scores. Apparently, in this sample mothers

of firstborn children in this sample are more involved in reading and participating in literacy activities with their children than mothers of laterborn children. In this aspect of literacy development, ordinal position does play a differentiating role, as Baskett (1984) inferred that it may.

Fathers and mothers in this sample reported the amount of time per day that their children spend watching TV and videos. The amount of time that their children spend watching TV does not seem to be related to performance on the PAT. The amount of time that children spend watching videos, however, is negatively related to performance on the PAT. Children in this sample who spend less reported time watching videos per week earned significantly higher scores on the PAT-1 and the PAT-T. Some videos are educational and can enhance a child's literacy development, but in view of the results at hand it is important to remember that young children's introduction to literacy is the product of adult-child and sibling-child interactions (Teal, 1986), which may well be limited if children spend a lot of time watching videos.

Home Environmental Assessment

It was originally hypothesized that there would be a significant difference, as assessed by the Print Awareness Test (Huba & Kontos, 1985), in children's development of print awareness as a function of home environments that are "rich" in literacy materials versus home environments where literacy materials are not as readily

available. Literacy materials, as assessed by the Home Environmental Assessment (Glover & Lindauer, 1988a), are readily available to the children in all of the homes in this sample. Very few differences were found in the presence of child print materials, educational toys, and writing materials. This made it difficult to make the comparisons that were originally planned. No relationship was found in this sample between literacy materials in the home environment and children's performances on the PAT. Goodman (1980) found that the young children in her research began to read by reading print embedded in environmental settings. This indicates the importance of a "rich" environment, as young children who are surrounded by literacy materials have more exposure to print. Through Goodman's research (1980), one could infer that if the literacy materials are widely varied, they could affect children's performances on the PAT.

There are familial differences in home literacy materials as measured by the number of children's books present. A wide range of children's books (from 1 to 450) are present in the homes in this sample. The number of children's books present, however, does not seem to influence the children's PAT scores. This finding is surprising in view of the research of Sulzby (1985) indicating that the development of print awareness is enhanced through interaction with favorite storybooks. It would seem that children with few books would have little opportunity to develop "favorite" stories.

One possible explanation is that perhaps the children in this sample who have only a few books are those who attend the library on

a regular monthly basis, obtaining use of many books. It is important to note that most children in this sample have enough books and/or exposure to enough children's books to have had the opportunity to become attached to "favorite" stories, as only 9 children had 10 or fewer books, and 21% had 50 books.

A wide range (from zero to 800) of adult books was also found in the homes in this sample. It is amazing that four families reported that they do not have any adult books in their home. The number of adult books does not have an influence upon the children's PAT scores. In view of current research, it is unusual that the absence of adult and children's books in the home would not have an effect upon the children's developing print awareness. Mason (1986) in particular found that reading materials contribute directly to the literacy foundation of young children. The small number of children fitting this category, however, precluded the analysis of this variable if indeed the absence of books is not related to PAT scores.

One possible explanation is that homes that do not have many adult books are not the same homes in which there are only a few children's books. As expressed previously, it could be that children with few books at home use the library on a regular monthly basis. Having access to books at places of employment or through friends and relatives are other possible explanations why the lack of books in the home may not affect children's PAT scores.

Summary

This study describes a sample in which most of the families are characterized in the two upper levels of social strata. These families have created home environments in which educational toys, writing materials, child print materials, and adult print materials are most often present.

Mothers' level of education is important in this sample, as it is directly related to the children's print awareness development. It is likely that mothers with high levels of education are more interested in literacy and the literacy development of their children.

Mothers in this sample are particularly involved in their childrens' development of literacy, as they read to their children and are involved in literacy-related activities with their children on a daily basis. Since all of the mothers are involved in literacy activities with their children, the fathers' literacy involvement is important in examining the childrens' development of print awareness. In particular, fathers' use of the library was found to be an important measure of their literacy interests, which has a positive influence upon the children's development of print awareness.

Reading pleasure scores for parents, assessed scores for the pleasure the children receive from being read to, and predicted pleasure scores for children upon learning to read are of major importance in this research. It seems that enjoyment and

participation in literacy-related activities is utmost importance for parents, as their children tend to enjoy reading if they do and want to participate in the literacy activities that they observe are important to their parents.

Limitations and Implications for Future Research

One of the limitations of the study is the nature of the sample. The sample is remarkably homogeneous in terms of SES, marital status, community residence, and the preschool attended by the children. Because of this, little variation was detected in the home environment factors, which were hypothesized to be associated with the development of print awareness. Moreover, daily reading and environmental influences generated by mothers does not vary widely. Although some children from other nursery schools in Cache Valley were used, most were identified from the files of the Utah State University Child Development Laboratory. Future research in this area should include a diverse group of children from many preschools and other locations within a broader region. Perhaps serious consideration should also be given to more sophisticated measurement of variables that theory suggests have an influence on print awareness in young children.

REFERENCES

Abramovitch, R., Corter, C. & Lando, B. (1979). Sibling interaction in the home. Child Development, 50, 997-1003.

Baghban, M. (1984). Our daughter learns to read and write: A case study from birth to three. Newark, Delaware: International Reading Association, Inc.

Baskett, L.M. (1984). Ordinal position differences in children's family interactions. Developmental Psychology, 21, 441-445.

Ferreiro,E. (1986). The interplay between information and assimilation in beginning literacy. In W. H. Teale and E. Sulzby (Eds.), Emergent literacy: Writing and reading. (pp. 15-49) Norwood, New Jersey: Ablex Publishing Corporation.

Glover, B. B., & Lindauer, S. L. K. (1988a). Home environmental assessment. Unpublished instrument.

Glover, B. B., & Lindauer, S. L. K. (1988b). Parental orientation towards literacy profile. Unpublished instrument.

Goodman, Y.M. (1980). The roots of literacy. Claremont Reading Conference, 44, 1-32.

Goodman, K. S. & Goodman, Y. M. (1979). Learning to read is natural. In L. B. Resnick and P. A. Weaver (Eds.), Theory and practice of early reading. (Vol. 1, pp. 137-154). Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.

Hiebert, E. H. (1981). Developmental patterns and interrelationships of preschool children's print awareness. Reading Research Quarterly, 16, 236-260.

Hieronymus, A. N., Lindquist, E. F., & Hoover, H. D. (1978). Iowa tests of basic skills. Iowa City, IA: University of Iowa.

Hollingshead, A. B. (1975). Four factor index of social status. New Haven, Conn: Yale University.

Huba, M. E., & Kontos, S. (1985). Measuring print awareness in young children. Journal of Educational Research, 78, 272-279.

Huba, M. E. & Robinson, S. S. (1985). Test-retest reliability of the Print Awareness Test. Unpublished raw data.

Huba, M. E., Robinson, S. S. & Kontos S. (1989). Prereaders' understanding of the purposes of print and subsequent reading achievement. Journal of Educational Research, 82, 210-215.

Huba, M. E., Robinson S. S., & Eltinge, E. M. (1989). Literacy concepts and skills among preschoolers: The development and test of a causal path model. Learning and Individual Differences, 1, 343-356.

Kontos, S. (1986). What preschool children know about reading and how they learn it. Young Children, 42, 58-66.

Lomax, R. G. & McGee, L. (1987). Young children's concepts about print and reading: Toward a model of word reading acquisition. Reading Reasearch Quarterly, 22, 237-256.

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

Mason, J. M. (1986). Reading stories to preliterate children: A proposed connection to reading. Presented at the Conference on Early Reading. Center for Cognitive Science, University of Texas at Austin.

Mason, J. M., & Allen, J. (1986). A review of emergent literacy and implications for research and practive in reading. In Ernst Z. Rothkopf (Ed.), Review of Research in Education. (Vol. 13) Washington, D. C.: American Educational Research Association.

Moon, B. C., & Wells, C. G. (1979). The influence of home on learning to read. Journal of Research in Reading, 2, 53-62.

Schickedanz, J. A. (1982). The acquisition of written language in young children. In Bernard Spodek (Ed.), Handbook of research in early childhood education. New York: Free Press.

Sulzby, E.(1985). Children's emergent reading of favorite storybooks. Reading Research Quarterly, 20, 458-481.

Taylor, D.(1986). Creating a family story: "Mathew! we're going to have a ride!" In W.H. Teal and E. Sulzby (Eds.), Emergent literacy: writing and reading (pp. 139-155). Norwood, New Jersey: Ablex Publishing Corporation.

Taylor, N., Blum, I., & Logsdon, D. (1986). The development of written language awareness: environmental aspects and program characteristics. Reading Research Quarterly, 21, 132-149.

Teal, W. H. (1986). Home background and young children's literacy development. In W.H. Teal and E. Sulzby (Eds.), Emergent literacy: writing and reading, pp. 173-202. Norwood, New Jersey: Ablex Publishing Corporation.

Teal, W. H., & Sulzby, E. (1986). Emergent literacy: Writing and reading. Norwood, New Jersey: Ablex Publishing Corporation.

Trelease, J. (1985). The read aloud handbook. New York: Viking Penguin Inc.

Wells, G. (1982). Story reading and the development of symbolic skills. Australian Journal of Reading, 5, 142-152.

APPENDIXES

Appendix A. Print Awareness Test

PRINT AWARENESS TEST

NAME_____ SEX: M F

CENTER_____ LOCATION_____

BIRTH DATE_____ AGE IN MO._____ TEST DATE_____

SUBJECT'S RESPONSE (+ or -)	S (1)	C (0)	D (0)	Circle child's response
PC1_____	B	C	A	S=Symbolic and most effective choice (e.g., look at label).
PC2_____	A	C	B	
PC3_____	B	C	A	C=Concrete, plausible, but less efficient choice (e.g., open it up
PC4_____	B	A	C	and taste it).
PC5_____	C	A	B	D=Unrelated distractor (e.g., bake a cake).

FOR THE FOLLOWING FIVE ITEMS, SEVERAL CORRECT RESPONSES ARE POSSIBLE. A CORRECT ANSWER CONTAINS A PRINT RELATED TERM WHICH MUST BE MENTIONED TO RECEIVE ONE POINT (E.G., IN VS1 "MARKS ON MEASURING CUP" RECEIVES 1 POINT, WHEREAS "MEASURING CUP" ALONE RECEIVES NO POINT.)

Circle correct response or write out what child says.

VS1_____ recipe/on box/marks on measuring cup

VS2_____ Make a list/write items down

VS3_____ A letter/note/card

VS4_____ Menu/card/pictures/sign on wall

VS5_____ Name was on the picture

	(0)	(1)		(0)	(1)
PW1	PIC	WORD	PW4	PIC	WORD
PW2	PIC	WORD	PW5	PIC	WORD
PW3	PIC	WORD			

TOTAL POINTS:____

The first section of the test consists of one sample question and five Picture-Choice questions (PC1 through PC5). For each, E reads the introductory question. S/he then points to each picture on the associated paper while reading the description of the picture provided in the multiple choice alternatives. (E should NOT read aloud the letter designating the alternatives: a), b), and c)). E begins this section by showing the child the card marked, "sample". S/he says to the child, "I want to ask you a question: If mom and dad want to know what movies are on at the theatre what is the best thing they can do to find out? Should they

a) look in the newspaper
b) go to the theatre and ask the person selling tickets
c) look in the cupboard."

Regardless of the child's answer, E says "Good job. Now I want to ask you some more questions." E proceeds with items PC1 to PC5.

PC1. Tom's mom wants to shop at Miller's Department store. How can she find out which store is Miller's? Should she

a) buy a hamburger and eat it.
b) look at the sign outside each store.
c) go in every store and ask someone.

PC2. One morning Dad looked in the cupboard and saw two new boxes of cereal. He wanted to eat the one called Crunchies. What is the best way to know which one is Crunchies? Should he

a) look on the boxes.
b) mow the lawn.
c) open both boxes and eat some.

PC3. If Jim's mother forgets the end of the Little Red Riding Hood story, what is the best thing for her to do? Should she

a) buy some fruit.
b) look in the book.
c) go next door and ask the neighbor.

PC4. Jane's dad is driving his car. He wants to know if he is on Baker Street. What is the best way for him to find out? Should he

a) get out of the car and find someone to ask.
b) look at the street sign.
c) turn on the windshield wipers.

PC5. Mom has a can of juice. If she wants to know if it has apple juice in it, what is the best way for her to find out? Should she

a) open it up and taste it.
b) bake a cake.
c) look at the label on the can.

When administering the Verbal Situation questions (VS1 through VS5), E reads the question and records the subject's response. Repeating the question and probing for additional responses is sometimes necessary.

VS1. Mom is baking a cake. She needs to know how much water to put in the bowl. How does she find out how much water she needs?

VS2. Bill's Mom is going shopping at the grocery store. She needs to buy a lot of things. What can she do to help her remember to buy everything?

VS3. Mrs. Jones took a present to Mary. No one was home at Mary's house, so she left the present on the front porch. When Mary came home, she opened up her present and said, "Oh, what a nice gift Mrs. Jones gave me." How did Mary know that the gift was from Mrs. Jones?

VS4. Laura and her grandmother went to a restaurant for lunch. Grandma told Laura what foods the restaurant had. How did Grandma know what foods were there?

VS5. All the children at school painted pictures and put them on the wall. Then they went outside. When Sarah's mom came in, she looked for Sarah's picture and said, "I really like this painting." How did she know which one was Sarah's?

When administering the Picture-Word questions (PW1 through PW5), E places two index cards which correspond to the question in front of the child, making sure to place them on E's right (R) or left (L) according to the code on the back of the cards.

PW1. Which one these is a story about a teddy bear?

PW2. My friend lives far away. If I wanted to tell him how fast my new car goes, which one these would I send him?

PW3. Last night I heard a joke on TV and I wanted to put it on paper just exactly the way I heard it so I could tell it to you today. Which one of these did I make?

PW4. My grandfather lives in another town. If I wanted to tell him what my dog did today, which one of these would I send him?

PW5. Last night my little girl said to me, "This cake is scrumpdilyitious!" I wanted to put down exactly what she said. Which one of these did I make?

Appendix B. Parent Orientation Towards Literacy Profile

PARENTAL ORIENTATION TOWARDS LITERACY PROFILE

Please complete the following questionnaire and give it to a researcher who will come to your home to visit. If you have any questions please contact Barbara Glover, 750-1525, or Shelley Lindauer, 750-1532. Thank you for your interest.

1. Mother _____ Father _____

2. At what age did you learn to read? _____

3. Who taught you to read? _____

4. How many daily newspapers do you subscribe to? _____

5. Do you read a newspaper on a daily basis? Yes _____ No _____

6. How many magazines do you subscribe to? _____

7. How many magazines do you read weekly? _____

8. Are you currently reading a novel or non-fiction book for pleasure?
Yes _____ No _____

9. Estimate the number of adult books present in your home. _____

10. On a scale from 1 to 5 rate the pleasure you receive from reading.

little pleasure a lot of pleasure
1_____2_____3_____4_____5

11. Do you use a library on a monthly basis? Yes _____ No _____

12. How many books have you read in the past six months? _____

13. Do you read to your child? Yes _____ No _____

14. What do you read to your child? _____

_____

15. What would you estimate is the average time per day spent reading to your child? _____

16. On a scale from 1 to 5 rate the pleasure that your child receives fr m being read to.

little pleasure a lot of pleasure
1_____2_____3_____4_____5

17. At what time(s) of the day do you regularly read to your child?

_____

18. Estimate the number of children's books present in your home. _____

19. Do other family members or adults read to your child? Yes _____ No_____

    If yes, who?_____

20. Does your child use books from a library on a monthly basis?

    Yes _____ No _____

21. What is your child's favorite book? _____

    _____

22. Estimate the average time per day your child spends watching TV.

    _____

23. What is your child's favorite TV show? _____

    _____

24. Estimate the average time per week your child spends watching videos.

    _____

25. What is your child's favorite video? _____

    _____

26. At what age do you think that your child will learn to read? _____
    Why? _____

27. Who do you think will teach your child to read? _____

    _____

28. On a scale from 1 to 5 estimate the pleasure that you believe your child will receive from reading once he/she has learned to read.

little pleasure a lot of pleasure
1_____2_____3_____4_____5

29. Do you have a special place in your home for pencils, crayons and paper that your child can use? Yes _____ No _____
    If yes, where _____

30. What are you currently doing to help your child become ready to read?

    _____

    _____

    _____

Appendix C. Home Environmental Assessment

HOME ENVIRONMENT ASSESSMENT

Please complete this scale for each family that you have been assigned to visit. Please respond to questions with thought and honesty as you assess the home environment.

Family being assessed: _____

Adult Print Materials

1. Daily newspaper present. Yes____ No____

2. Current adult magazines present. Yes____ No____

3. Estimate the number of adult novels or information books present. ____

Child Print Materials

4. Children's books visible. Yes____ No____

5. Children's books are at the child's level? Yes____ No____

6. Children's magazines visible. Yes____ No____

7. Children's magazines are at child's level? Yes____ No____

8. Child's name visible to the child on a daily basis in written or printed form. Yes____ No____

9. Are educational toys present that include ways in which a child responds to print?

magnetic letters	Yes____	No____
alphabet puzzles	Yes____	No____
chalkboards	Yes____	No____
numbers	Yes____	No____
computer	Yes____	No____
records/tapes with follow-along-books	Yes____	No____
alphabet flash cards	Yes____	No____
printed letters	Yes____	No____
other	Yes____	No____

10. Are writing materials available to the child?

pencils	Yes____	No____
paper	Yes____	No____
crayons	Yes____	No____
other	Yes____	No____

Appendix D. Parent Information Letter

UTAH STATE UNIVERSITY CENTENNIAL

DEPARTMENT OF FAMILY AND HUMAN DEVELOPMENT
College of Family Life
Logan, Utah 84322-2905

March 24, 1989

Dear Parents,

Thank you for your willingness to participate in this research study investigating the development of print awareness in young children. We appreciate your interest in our research project.

With this letter you will find an Informed Consent Form, and Demographic Information Form, and two Parental Orientation Towards Literacy Profile questionnaires. Both mother and father need to fill out a questionnaire independent of each other. Together please complete the Demographic Information Form and sign the Consent Form. A researcher will be calling your home in the near future to set up a time to visit you in your home. This researcher will collect all of these forms when the home visit is made. During this visit, the researcher will administer a Print Awareness Test to your child. This 15-item test has been developed to measure a child's understanding of the purposes of print. The researcher will also be interested in talking with you about literacy activities, books and toys within your home.

Consistent with the Child Development Laboratory Research Policies, this study will be completely confidential. Measures will be identified by children's individual identification numbers, with only the researchers having access to the data and the files containing matching identification numbers with names. Findings will be reported on group levels only. If at any time you or your child express a desire to drop out of the study you may do so without penalty. Upon completion of the study, parents indicating an interest will receive a copy of the results, and further information about the development of literacy in young children. If you have any questions concerning this study please contact either of us at the numbers below. Thank you for your interest.

Sincerely,

Shelley L. Hudsen Lindauer, Ph.D.
Director, Child Development Laboratory
750-1532

Barbara B. Glover
Graduate Student
750-1525

DEMOGRAPHIC INFORMATION FORM

	Age	Occupation	Education Completed
Father			
Mother			

Please list ages and sex of all children in the family:

	Age	Sex
1.		
2.		
3.		
4.		
5.		
6.		
7.		

Appendix E. Informed Consent Form

UTAH STATE UNIVERSITY CENTENNIAL

DEPARTMENT OF FAMILY AND HUMAN DEVELOPMENT
College of Family Life
Logan, Utah 84322-2905

INFORMED CONSENT FORM

I hereby give permission for my child, _____, to participate in the study on Print Awareness in young children. I understand that my child will participate in a print awareness test, that I will be asked to complete a questionnaire, and that a home visit will be made. I understand that I may withdraw from the study at any time without penalty. I am aware that the identity of myself and my child as well as information collected from us will remain confidential.

Parent's Signature: _____

Parent's Signature: _____

Date: _____

I am interested in receiving a copy of the results of this study.

Name: _____

Address: _____

_____

Appendix F. Parental Reading Pleasure Scores, Estimates of Child's Pleasure From Being Read To, and Estimates of Child's Predicted Pleasure After Learning to Read for Firstborn Males, Firstborn Females, Laterborn Males, and Laterborn Females

Parental Reading Pleasure Scores, Estimates of Child's Pleasure from Being Read To, and Estimates of Child's Predicted Pleasure After Learning to Read (for First-Born Males)*

Parental Reading Pleasure		Estimate of Child's Reading Pleasure: From Being Read To		After Learning to Read	
Mother (N=14)	Father (N=14)	Mother (N=14)	Father (N=14)	Mother (N=14)	Father (N=14)
5	5	5	5	5	5
5	4	5	5	5	5
5	4	5	5	5	4
5	4	5	4	5	5
5	4	5	4	5	4
5	4	4	4	5	4
5	2	5	4	5	4
5	2	4	4	3	2
4	5	4	5	4	5
4	4	4	4	5	4
4	4	4	4	3	4
4	3	4	5	4	3
4	3	4	3	4	4
4	2	4	4	4	4

*Each variable rated on a 5-Point Likert Scale Ranging From No Pleasure (1)
to Great Pleasure (5).

Parental Reading Pleasure Scores, Estimates of Child's Pleasure from Being Read To, and Estimates of Child's Predicted Pleasure After Learning to Read (First-Born Females)*

Parental Reading Pleasure		Estimate of Child's Reading Pleasure: From Being Read To		After Learning to Read	
Mother (N=12)	Father (N=12)	Mother (N=12)	Father (N=12)	Mother (N=12)	Father (N=12)
5	5	5	5	5	5
5	4	5	5	5	5
5	3	4	4	5	4
5	3	4	4	5	4
4	5	5	5	5	5
4	5	4	5	4	5
4	4	5	5	4	4
4	4	4	4	3	4
4	3	4	4	4	4
3	3	5	5	5	5
3	3	5	5	5	5
3	2	4	4	4	4

*Each variable rated on a 5-Point Likert Scale Ranging From No Pleasure (1) to Great Pleasure (5).

Parental Reading Pleasure Scores, Estimates of Child's Pleasure from Being Read To, and Edtimates of Child's Predicted Pleasure After Learning to Read (Later-Born Males)*

Parental Reading Pleasure		Estimate of Child's Reading Pleasure:			
		From Being Read To		After Learning to Read	
Mother (N=14)	Father (N=14)	Mother (N=14)	Father (N=14)	Mother (N=14)	Father (N=14)
5	5	5	5	5	3
5	4	5	4	5	4
5	3	5	5	5	5
5	3	4	4	5	5
4	5	5	5	5	5
4	5	3	3	3	4
4	4	4	3	4	4
4	4	3	5	3	5
4	3	4	4	4	4
3	4	5	5	5	4
3	4	5	5	4	5
3	4	4	4	4	4
3	3	4	3	3	4
3	2	4	4	3	4

*Eachvariableratedon 5-Point Scale Ranging From NoPleasure(1)to Great Pleasure (5).

Parental Reading Pleasure Scores, Estimates of Child's Pleasure from Being Read To, and Estimates of Child's Predicted Pleasure After Learning to Read (Later-Born Females)*

Parental Reading Pleasure		Estimate of Child's Reading Pleasure:			
		From Being Read To		After Learning to Read	
Mother (N=16)	Father (N=16)	Mother (N=16)	Father (N=16)	Mother (N=16)	Father (N=16)
5	5	2	1	3	3
5	4	4	3	4	3
5	3	5	5	5	5
4	5	4	5	4	5
4	5	4	5	4	4
4	5	3	3	4	5
4	4	5	5	5	5
4	4	5	5	5	5
4	4	4	4	4	5
4	4	4	4	4	4
4	4	3	4	4	5
4	3	4	5	5	4
4	1	4	4	3	3
3	5	4	3	4	4
3	2	5	4	3	3

*Each variable rated on 5-Point Likert Scale Ranging From No Pleasure (1) to Great Pleasure (5).

Appendix G. Reported Monthly Library Use for Firstborn Males, Firstborn Females, Laterborn Males, and Laterborn Females

Reported Monthly Library Use for Firstborn Males and Females*

N	Sex	Child's Use As Reported by: Mother (N=26)	Father (N=26)	Mother (N=26)	Father (N=26)
3	M	1	1	1	1
2	F	1	1	1	1
1	M	1	1	0	1
1	M	1	0	1	1
5	F	1	0	1	1
1	F	1	0	0	1
1	F	1	0	0	0
3	M	0	1	0	0
1	M	0	0	1	0
5	M	0	0	0	0
2	F	0	0	0	0

* 1 indicates regular monthly use of the library
0 indicates no regular library use

Reported Monthly Library Use For Laterborn Males and Females*

N	Sex	Child's Use As Reported By: Mother (N=30)	Father (N=30)	Mother (N=30)	Father (N=30)
1	M	1	1	1	1
4	F	1	1	1	1
1	M	1	1	1	0
1	F	1	1	1	0
5	M	1	0	1	1
2	F	1	0	1	1
1	M	1	0	1	0
1	M	1	0	0	0
2	F	0	1	1	1
1	M	0	1	0	1
1	M	0	1	0	0
1	M	0	0	1	0
1	F	0	0	1	0
1	F	0	0	0	1
1	M	0	0	0	0
3	F	0	0	0	0

* 1 indicates regular monthly use of the library
  0 indicates no regular library use