PARENT-CHILD INTERACTIONS IN

TWO DIFFERENT STORYBOOK

CONTEXTS

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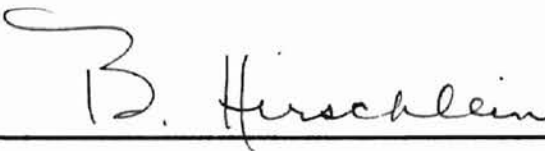the Degree of
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Chapter I

Introduction

Children's exposure to literacy has been found to have an impact on their development. Children are exposed to literacy through books, television, computers and print in their environment. Adults play an enormous role in providing children with an environment that involves literacy. Many parents begin reading to their children at birth. Reading to children has been found to have a significant effect on their future reading achievements (Kupetz & Green, 1997). Children as young as two years of age have been shown to follow the pointing and cues of parents when reading storybooks (Kupetz & Green, 1997). The different types of scaffolding strategies that are used when parents read to their child can affect their child's literacy development. Having the child become an active participant in the storybook reading can benefit a child in many ways.

Computers are a medium that is increasingly seen as a part of everyday life. More and more children are exposed to computers, and at earlier ages as well. Children as young as eighteen months have shown that they are able to manipulate many different tasks on computer (Shade & Watson, 1990). New software has been introduced to children, and this software is labeled as interactive storybooks. This software includes stories that have been placed on CD ROM for the child to view via computer. The development of this software has raised questions concerning the benefits to the child and the nature of the parent-child interactions. Research concerning this software has been very minimal.

The focus of this study was to examine the interactions between parent and child while reading a paper storybook and an interactive storybook. Paper storybooks were referred to as the "traditional" storybook and interactive storybooks were defined as stories that have been placed on CD ROM and viewed via computer. Both of these media encourage interaction from adults, however the interactions may be different.

Purpose

The purpose of this study was to determine the amount of interaction between the parent and child during picture-book reading in comparison to computer storybook reading. The interactions between parent and child were expected to differ when engaged in a picture-book reading as compared to computer storybook reading. This is a question that had not been addressed by previous research.

Theoretical Framework

According to Vygotsky's theory, children learn through collaboration and interactions with other individuals. Vygotsky believed that the acquisition of language was a major contributor to children's cognitive development. By experiencing social encounters, a person was able to form observations and understandings of their surrounding environment. "Language played a crucial role in a socially formed mind because it was our primary avenue of communication and mental contact with others, served as the major means by which social experience was represented psychologically, and was an indispensable tool for thought" (Berk & Winsler, 1995, p. 12).

Vygotsky identified the zone of proximal development (ZPD) as a way to theorize about the role of instruction and formal education in child development. "Vygotsky defined the zone of proximal development as the distance between a child's actual developmental level as determined by independent problem solving and the higher level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Miller, 1993, p. 379). The ZPD was seen as the area in which the transmitting of abilities from the collaboration of one's surroundings to the individual takes place. It was within this zone that internal developmental processes arose due to the child's interactions with people in his/her environment and in cooperation with his/her peers.

Vygotsky often viewed the child as "building, actively constructing him-or herself. The social environment was the necessary scaffold, or support system that allowed the child to move forward and continue to build new competencies" (Berk & Winsler, 1995, p. 26). Scaffolding provided a warm, gratifying interaction between an adult and a child during which both were involved in a joint problem-solving activity. While engaged in this activity, the adult encouraged the child's autonomy by offering sensitive and contingent guidance, promoting children's representational and strategic thinking, and cueing children to establish more responsibility for the task as their knowledge progressed.

Within scaffolding techniques, three types of distancing strategies have been identified that take place between parent and child. One strategy has been described as the low-level distancing strategy. These strategies were questions

or statements which adults referred to certain objects or events that one encountered in their present surroundings. Some examples of this strategy would include "What number is this?" or "This dog sure is big." Another distancing strategy was identified as the medium-level distancing strategy. This strategy involved adult utterances that extended the present surroundings by discussing the correlation between two noticeable immediate dimensions. This strategy involved making comparisons or categorizing certain things. An example of this strategy might be, "Yes, he has a blue shirt just like you." The third distancing strategy has been labeled the high-level distancing strategy. This level was described as adult utterances that facilitated children to organize an educated guess by elaborating on what is given in the present surroundings. This strategy involved planning or deducing on the part of the child in order to determine what may happen next (Berk & Winsler, 1995). An example of this strategy would be, "Does he have the same color eyes as you?"

Language Development

According to previous research, children before the age of 2 years seem to master new words more readily from social interaction and direct references than from secondary references. Children, before the age of 2 years, have shown increases in vocabulary due to interactions with other individuals (Robbins & Ehri, 1994). Reading to young children allowed an adult to interact with a child and promote his or her development. It also seemed to have significant effects on children's literacy development. "Children used language to express ideas and explore what might be and as adults encouraged them to expand and elaborate

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upon their ideas, they become increasingly competent in communicative and linguistic skills" (Hoffman, 1989, p.23). By encouraging children to become an active participant with literature, adults assist children to enhance their language development, their understanding of stories, and their comprehension of story structure (Morrow, 1993).

Storybook Reading & Language Development

Adults often serve as role models by reading to children and have a substantial impact on the development of a future reader (Goalman, Oberg & Smith, 1984). An article written by Hoffman in 1989, reported significant effects of storybook reading on language development. Hoffman found that a child's first reading encounters at home were extremely significant to his or her continued successes in school. Children who have been read to in the home were found to be more opportune learners. Adults may implement shared storybook reading to extend a child's oral language development. Shared storybook experiences intensified and elaborated a child's language and provided a chance for adults and their children to communicate and associate the author's written language. The written expression within the book and the discussion between the parent and child facilitated a significant cognitive conflict in a child's mind that stimulated the comprehension of ideas. By communicating and interacting with others, especially adults with joint book reading experience, children successfully foster their cognitive growth (Hoffman, 1989).

Storybook events between parent and child have been shown to increase children's language development (DeBaryshe, 1993). Parents exhibited more

sophisticated language, engaged in accelerated vocabulary guidance, and seemed more sensitive to their child's capabilities and adjusted their reading style accordingly during storybook experiences (DeBaryshe, 1993). The quality and frequency of parent-child storybook reading instances during early childhood have been found to be prerequisites for future school attainment. "Reading books aloud exposed children to grammatical forms of written language and displayed literate, discourse rules for them in ways that conversation typically did not" (Bus, van Ijzendoorn, & Pellegrini, 1995, p.2). When adults repeated storybooks, they allowed the child to focus on letter recognition and word patterns while facilitating an awareness of the books intentions.

Interaction Strategies Within Joint-Storybook Reading

There has been a significant association between parent reading style and children's emergent literacy reported in the literature. "Dialogic reading of adults increased their rates of open-ended questions and elicited children's responses during book reading. Dialogic reading benefited 2 to 4-year old children's expressive and receptive vocabulary, as well as their writing and print skills" (Reese & Cox, 1999, p. 21). Three dialogic styles of reading have been identified. The describer style has been defined as when mothers focused on describing and labeling pictures. "The overall benefits for a describer style of reading must be considered in the context of significant interactions between reading style and children's preexisting skill levels. A describer style was most beneficial for print skills when children had higher initial story comprehension levels" (Reese & Cox, 1999 p. 26).

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Mothers who engaged in the comprehension style concentrated on the implications of the storybook and made predications about story occurrences. The third style was identified as the performance-oriented style. These behaviors were described as those of adults who did not make inferences about the story and only allowed children to discuss the story before and after the story was read. "A describer style of book reading with children does appear to provide overall benefits for their receptive vocabulary and print skills in comparison with the other two reading styles" (Reese & Cox, 1999, p.26). Specifically, children with higher initial vocabulary benefited most in their language from a describer style than from a performance style.

The way an adult expressed their language during shared storybook reading had a significant impact on children's cognitive functioning. "The more expressive the mother's language during the shared book experience and the more the child was encouraged to be an active participant in the event, the stronger the indicator's of the child's cognitive functioning and trust of self and parent within the context of the shared storybook event" (Hoffman, 1989, p.8)

Parents have been found to enhance the learning during shared storybook reading by using inviting questions and comments. When adults read to children, they often use a variety of techniques including what, where, why, and open-ended questions. Research has demonstrated that parents asked clarifying questions that combined discussion between parent and child (Senechal & Cornell, 1993) as well as questions that enhanced understanding of new vocabulary (Senechal, Thomas, & Menker, 1995). Questioning strategies,

especially those in multiple readings, have been linked with children's anticipating storybook events; better comprehension of stories, and production of language and literacy understandings (Morrow, 1984; Senechal, et al., 1995).

Repetition or replication of specific words and the recasting of ideas in the story (Senechal & Cornell, 1993) are additional adult scaffolding strategies that have been examined within the context of shared storybook readings.

One type of parenting behavior that has been defined is recasting. "A recast builds directly on the previous utterance, changing one or more of its components, that is subjects, verbs, or objects" (Senechal & Cornell, 1993, p. 363). Recasts allowed the children to find similarities between linguistic structures previously obtained and new structures.

Another parenting behavior reported was the use of repetition to emphasize specific words. This is often demonstrated by replicating the sentence that included the largest word promptly after the first reading of the sentence. This experimentation allowed children another opportunity to affiliate the label with the referent.

The final reading behavior has been referred to as reading the story verbatim. This has been defined by no active participation or interaction between the adult or child. "Vocabulary acquisition might occur in such exposures as the child attempted to comprehend meaning" (Senechal & Cornell, 1993, p.363).

Storybook reading is an important part of children's' learning. Shared storybook experiences between adults and children promote children's vocabulary, literacy skills, language development, and much more. Shared

storybook experiences allow the adult a chance to get-to-know the child and foster their development. However, storybooks are not the only source of literacy explored in children's books. Television also has the potential to expose children to the world of language and literacy through book reading.

Television and Children

Television is a medium that is viewed a lot by children. Children as young as 3 years of age are known to be regular viewers. They average more than 1 ½ hours of television viewing daily. "By age 4, parents reported that children spent about a third of their waking hours viewing TV" (Anderson & Levin, 1976, p. 806).

Television and paper storybooks are two media that are very similar yet very different. Both have been found to be predictable and have a similar routine. Educational programs for young children are found to contain predictable content (Lemish & Rice, 1986). Reruns aired on television are common examples of predictability also. The times television programs are aired and when the children view them offers a routine pattern. All programs have scheduled viewing times that allow children to watch television at routine times.

The interaction that the child is involved in is viewed differently according to the medium. Television has often been viewed as text and was not found to involve interaction about the text (Liddicoat, 1991). Children who were observed viewing books on television showed little signs of verbalization (Liddicoat, 1991). Interactions and questions were not found to be as frequent during television storybooks compared to paper storybooks (Liddicoat, 1991). Children often did not interact with television because they knew the characters could not hear them

and the interaction was one-sided (Liddicoat, 1991). Overall, less interaction between the adult and child occurs during televised book reading (Liddicoat, 1991).

When reading paper storybooks, both adults and children have been shown to initiate interactions. However, in televised picture books, interactions were initiated more often by children (Liddicoat, 1991). "Television was unable to provide the interactive language use which was associated with the acquisition of literacy and so the language produced by the reader, even where it paralleled, live readings could not achieve the same results as interactional reading" (Liddicoat, 1991, p. 108).

Lemish and Rice found that young children often viewed television in two different ways. One way was that children were passive viewers of television. This has been described as the child being mesmerized by the television screen but not comprehending what he or she has seen. The images on the television screen are too rapid for the child to discriminate the meaning of the program. Another way young children view television is by selecting what they prefer to see and process. This was defined as the child only looking at the television screen when he or she hears a familiar sound or a voice that seems intriguing. Children often look at the television screen when they hear a child's voice.

Television viewing was difficult for adults to control. The interaction that took place between adults and children was not well defined. It was difficult to set up a situation for interaction to take place because the program was not accessible to previous viewing by the adult. Also, television programs do not

pause when children leave the room. This makes it difficult for children and adults to understand the entire program, and therefore, there was a loss of parent-child interaction. The amount of interaction that took place also depended on how interesting the program was to the adult. Television has often been found to be a device that distracts children, and adults were able to attend to other tasks while the child was engaged. This resulted in the child watching the television without the presence of an adult and no interaction takes place (Lemish & Rice, 1986).

Computers and Children

The development of computer based storybooks has opened a new area for parent and child interactions with storybooks. These have the potential to combine the visual stimulations of television with the interactive nature of storybook reading. It was not until the late 1970's that computers were introduced into early childhood classrooms. "Today almost every preschool has a computer, with the ratio of computers to students changing from 1:125 in 1984 to 1:22 in 1990 to 1:10 in 1997" (Clements, 1998, p.3). Computers have been introduced in the homes of young children as well. Children are being introduced to electronic storybooks, also known as interactive storybooks which are "books with characters and pictures that 'come to life' through animation, sound, and music" (Elliott, 1996, p.16).

The use of computers with young children has been found to be developmentally appropriate. Young children between 18 and 60 months of age can work many diverse computer tasks (Shade & Watson, 1990). Young children have been shown to have contentment and certainty when using computers.

They are able to proceed with pictorial directions and use visual cues to comprehend and imagine their activity (Clements & Nastasi, 1993). Computers were often seen as a part of everyday life. Children often viewed parents and siblings using a computer for work, school, or leisure activities. Computers facilitated interactions between children and adults. By using the appropriate software, computers enhanced syntonic learning by allowing children the chance to explore and evaluate various conceptions of the environment that may not be available to them (Shade & Watson, 1990).

Computers enhanced children's cognitive, social, and emotional development. The effectiveness of computers varied according to the quality of the software, the time spent, and the method used (Clements, 1987). Computers have also been known to facilitate children's language. "Children's verbal statements were strongly affected by the characteristics of the software. Programs, with definite correct answers elicited verbalizations about correctness and winning, but also encouraged peer teaching; open-ended programs elicited more wondering and hypothesizing (i.e. stimulate imagination)" (Clements, 1987, p.37).

Many studies have shown that children have an interest in computers. Children often selected computer activities the same way they selected other activities, because they exhibited interest in that activity (Elliott, 1996). "Children preferred programs that were animated problem-solving-oriented, and interactive -that gave them a feeling of control over the computer "(Clements, 1987, p.35). Children also preferred female voices and familiar sound effects (Clements &

Nastasi, 1993). It has also been discovered that young children preferred to work with others during their use of the computer. When children were engaged in a computer task they engage in social interaction nine times as much as when they were involved in other situations (Miller & Rulmutter, 1985). Children often established new friendships when working on computers due to the assistance and knowledge of their peers.

Though computers have been shown to be very beneficial to the development of children, there are still gaps in our understanding of the use of technology that have been identified by previous research. One is the fact that there are so many activities located within the pages of the interactive storybook that he or she might become distracted from the actual story (Tally, Lang, & Lee, 1997). "Adults sometimes speak so rapidly that children cannot interpret their intentions without asking them to slow down. While adults will often slow their tempo, children find that they cannot slow down their computer- it proceeds precisely and inexorably at a speed which rarely changes pace" (Krueger, Karger, & Barwick, 1988, p.72).

Purpose of Research

The focus of this research was to examine the interaction between parent and child during storybook reading. Vygotsky's theory provided a theoretical framework that described how adult interactions facilitated children's development. Previous research has shown that the interactions utilized by the parent during storybook reading foster the development of children. Though research has provided extensive information concerning the benefits of computer

usage among young children, research concerning the interactions between parent and child during computer based interactive storybook reading has not been identified.

The research hypotheses identified in this study were that:

1. Parents would engage in more facilitative scaffolding strategies; i.e. questions, oral dialogue, and comments in the paper storybook reading condition than the computer based storybook condition.

2. Children would make more interactions and ask more questions in the computer storybook than in the paper storybook condition.

3. Total parent-child interactions were predicted to be greater in the paper storybook rather than the computer storybook condition.

Parents were expected to be more likely to ask questions, point out certain interests within the story, and extend a child's creativity through paper storybook reading. The independent variable was storybook condition and the dependent variable was the amount of interaction.

Research Design & Research Method

This study was a quasi- experimental research design. It was possible to manipulate the independent variables, however subjects were not randomly assigned to the experimental and control groups due to small sample size. The unit of analysis was the individual parent. This was a cross-sectional study.

Ethical Considerations

There were a few ethical considerations one should be aware of when conducting an observational study. Confidentiality and anonymity were taken into consideration when preparing this study. Each participant was assigned a number in place of his or her names. This helped eliminate any possible bias that may have been present during research. A consent form was also provided for parents to sign, agreeing that their child could participate in the study. There were also letters sent out to the parents that informed and explained the procedures that were taken to conduct this study.

Definition of Terms

The following are definitions of terms that apply to the study.

- Describer Style of Reading - adults who are focused on describing and labeling pictures (Reese & Cox, 1999, p. 26).

- Developmentally Appropriate Practice – the outcome of a process of teacher decisionmaking that draws on at least three critical, interrelated bodies of knowledge: (1) what teachers know about how children develop and learn; (2) what teachers know about the individual children in their group; and (3) knowledge of the social and cultural context in which those children live and learn (Bredekamp & Copple, 1997, p. vii).

- Dialogic Reading Style - a shared picture book reading designed to accelerate the language development of young children (Arnold & Whitehurst, 1994).

- Electronic or Interactive Storybooks - books with characters and pictures that "come to life" through animation, sound, and music (Elliott, 1996, p. 16).

- Joint-Book Reading - an adult and child reading a storybook

- Performance-Oriented Style of Reading - adults who do not make inferences about the story and only allow children to discuss the story before or after the story is read (Reese & Cox, 1999, p. 26).

- Recasting - building directly on the previous utterance, changing one or more of its components, that is subjects, verbs, or objects (Senechal & Cornell, 1993, p. 363).

- Scaffolding - parental behavior that supports children's efforts, allowing children to be more skillful than they would be if they relied only on their own abilities (Santrock, 1996, p. 473).

Chapter 2

Methods and Procedures

The purpose of this study was to determine the amount of interaction between parent and child when reading a paper storybook in comparison to computer storybook reading.

<u>Sample</u>

The sample of this study included thirteen two and three-year-olds and their mothers that were recruited from the Child Development Lab at Oklahoma State University. The sampling unit was the individual mother and the sampling frame was a list of all mothers who had their child enrolled in the Child Development Laboratory at Oklahoma State University. This was a convenience sample. The subjects were recruited using a list of parents who had their child enrolled in the Child Development Laboratory at Oklahoma State University. There were 16 children enrolled in the classroom. Eighty-one percent agreed to participate in this study.

The children in this study ranged from 25 to 38 months of age with a mean age of 32 months, 61 percent of the children were female. Eighty-five percent of the children were Caucasian.

The mean age of the mothers involved in this study was 34 years. Eighty-five percent of the mothers were married and Caucasian. Eighty-four percent were employed full-time, eight percent were employed part-time, and eight percent were not employed outside of the home. The educational level of the mothers was reported as 46% having a graduate degree, 8% a four-year degree,

31% a two-year degree, and 15% had some college. Demographic information for the parent and child has been reported in Table 1.

Procedures

A letter was sent home to parents explaining the project and asking them to sign an informed consent form indicating their willingness to participate. Appointment times were available at drop off, pick up, and early evenings for the parent-child readings. A sign-up sheet was displayed in the classroom for the parent to sign the time they were able to read to their child. Parents who failed to sign the sign-up sheet were phoned or approached by the researcher regarding the time that they were able to participate in the study. A questionnaire, the Family Survey, and a demographics survey were sent home for each parent to complete.

Each child was taken individually to a classroom separate from their classroom at the child development labs for the Picture Peabody Vocabulary Test-Revised (PPVT-R). The examiner was familiar to each child as she currently worked 10 hours a week in the classroom. The administration of the PPVT-R took approximately 20 minutes.

Appointment times were available at drop off and pick up and early evenings for the parent-child readings. Each parent-child dyad was videotaped first in the paper storybook condition. The parents were asked to read the book When I Get Bigger (Mayer, 1983), to their child as they normally would at home. The parent and child sat at a table during the storybook reading. Some of the

children sat on their mother's lap while others preferred to sit in a chair beside their mother. This procedure took approximately 10 minutes.

On a second date, each parent-child dyad was videotaped in the computer storybook condition. The parents were asked to discover the book <u>Just Grandma and Me</u> (Mayer, 1997) with their child. The parent and child sat in front of the computer. Some of the children sat on their mother's lap while others chose to sit in a chair beside their mother. Once the computer storybook began, there was no way to stop, pause, or visit a previous page. The computer storybook was read at a constant rhythm. This procedure took approximately 15 minutes. Upon completion of the second videotaping, each family received a paperback children's storybook. The order of presentation was changed for two children because of their willingness to participate in the study on the day that was assigned.

<u>Instrumentation and Measurement</u>

Four instruments were used to conduct this study. The instruments were, the Peabody-Picture Vocabulary Test - Revised (PPVT-R), Parent-Child information form, the Family Survey (FS), and an adaptation of the Kaderavek-Sulzby Bookreading Observational Protocol Instrument and scaffolding categories identified in a study by Lemish and Rice. The PPVT-R was a standardized test that assessed receptive vocabulary. It was designed for individuals between the ages of 2.5 years to late adulthood. The reliability of the PPVT-R has previously been established. "Test-retest reliability was established for raw scores, resulting coefficients of stability ranged from .52 to .90 with a median value of .77. For

standard scores, the coefficients ranged from .54 to .90 with a median value of .77" (Impara & Murphy, 1994, p. 236).

The second instrument – The Parent-Child information form contained 10 items that focused on family demographics. The parent's marital status, employment status, and level of education received were also included. See appendix A for detailed information.

The third instrument was the Family Survey (FS). This instrument contained 29 items that focused on family demographics and past and current home literacy practices (DeBaryshe, 1995). Only a portion of the original DeBaryshe instrument was used. The portion of interest examined the frequency in which a child was exposed to storybooks. This instrument was also modified to include questions about the presence and use of computers in the home. This instrument has been previously shown to have reliability and validity. A study by DeBaryshe (1995) established two-week test-retest reliability for the FS was .91. See appendix B for detailed information.

The Kaderavek-Sulzby Bookreading Observational Protocol (Kaderavek & Sulzby, 1998) in addition to scaffolding strategies that were identified in an article by Lemish and Rice were used to code the videotapes of parents and children during reading activities. This instrument consisted of nine categories. Three of the categories pertained to the questions and comments of the child. Six of the categories pertained to the interaction of the parents. Some of the categories examined the amount of labeling that took place when identifying something that is related to the storybook. Other categories examined the amount of questions

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that were asked during the storybook. A final category scored the amount of pointing or commenting by the mother that was related to the storybook. Together, these categories determined the amount of interaction that took place when reading a paper storybook or a computer storybook. This instrument was used twice. Once to code for the paper storybook, and another time to code for the computer storybook. All nine paper storybook strategies were combined to create a total paper storybook scaffolding scale (alpha = .57). Likewise, all nine computer scaffolding strategies were combined to create a total computer scaffolding scale (alpha = .59). Both instruments included the following scoring criteria: child labeling, repetition, child questions, mother's labeling, mother's questions, tag questions, oral dialog, acknowledgement, and comments related to the storybook. See appendix C for detailed information.

Chapter 3

Results

The focus of this study was to examine the interactions between parent and child while reading a paper storybook and an interactive storybook. The interactions between parent and child were expected to differ when engaged in a paper storybook reading as compared to computer storybook reading.

<u>Descriptive information about books and computer exposure</u>

Mothers began reading to these children prior to their first birthday. Many of these homes contained numerous books and most mothers were found to read to their child daily. Fewer homes were found to visit the library more than once a year. See Table 2 for descriptive information.

A majority of the households reported having computers. Most children were assisted by the mother or father when using a computer. Only minimal children had an older sibling that assisted the child. Besides using them in the home, a majority of the children had no opportunity to experiment with computers. Half the families had computer software programs for their children. Some of the software owned by the families were Dr. Suess Preschool, Dr. Suess ABC's , The Learning Company, The Magic School Bus, and Jump Start. See Table 3 for descriptive information.

A total print/computer exposure score was created by summing how often the parent read to the child, how often they took their child to the library, and how often the child used the computer. This score was correlated with PPVT-R

scores, total paper storybook scores, and total computer storybook scores. No significant correlations were found.

Videotape data for two children were not available because technical difficulty, inattentiveness during the computer storybook, and inattentiveness during the paper storybook. Thus, the following results pertain to 11 mother-child dyads.

Descriptive information about interaction behaviors

Mother's used more interaction behaviors than the child. In both contexts the top four strategies employed by the mothers were comments, labeling questions, repetition of what the child said, and acknowledgements. Children asked more labeling questions in the computer context than the storybook context. Descriptions available in Table 4.

A total parent-child interaction score was computed separately for each context. The total parent-child interaction score for the storybook context had a sample mean of 29 (S.D. = 23.23) and ranged from zero to 70. The total parent-child interaction score for the computer context had a sample mean of 33.69 (S.D. = 27.29) and ranged from zero to 81.

Correlations among paper storybook scaffolding strategies

Correlations among paper storybook scaffolding variables revealed several significant correlations (Table 5). The more parents engaged in oral dialogue, repeating what the child said, and asking questions related to the storybook, the greater the level of child labeling questions concerning something related to the

story. In addition, higher levels of parental oral dialogue were associated with greater use of repetitions and acknowledgement.

Correlations among computer storybook scaffolding strategies

Correlations among computer storybook scaffolding variables only revealed one significant association (Table 6). Parental comments related to the story was associated with a greater amount of child questions concerning the storybook ($r = .56. \underline{p} < .05$). The more questions children asked the more comments parents made.

Associations between scaffolding strategies across contexts

Correlations between the scaffolding strategies used in the paper storybook and the computer storybook contexts only revealed five significant correlations. These included computer parent labeling questions and paper storybook repetition ($r = .62, \underline{p} < .05$), computer tag questions and paper storybook child questions ($r = .57, \underline{p} < .05$), computer storybook tag questions and paper storybook parent acknowledgement ($r = .65, \underline{p} < .05$), computer storybook comments and paper storybook parent questions ($r = .69, \underline{p} < .05$), and computer child questions and paper storybook comments ($r = .56, \underline{p} < .05$).

Associations between variables

Correlations between PPVT-R scores, the print/computer exposure scores, total paper storybook scaffolding scores, and total computer storybook scaffolding scores showed no significant associations (Table 7). The scores for the PPVT-R showed no significant association with the total scaffolding scores for the paper and computer storybook readings. As a result, the PPVT-R was not

used as a covariate in future analyses. Also, the amount of exposure to computers and books showed no significant association with the total scaffolding scores for the paper and computer storybook readings.

Comparisons between conditions

The first hypothesis is that parents would engage in more facilitative scaffolding strategies in the paper storybook than the computer storybook. Paired t-tests were performed to analyze the data. Paired t-tests results were reported for parent questions as $t = .42$ (df = 12, n.s.), parent comments as $t = -1.26$ (df = 12, n.s.), and oral dialogue as $t = 1.97$ (df = 12, n.s.).

The second hypothesis was that children would make more interactions and ask more questions in the computer storybook than the paper storybook. Paired t-tests results were reported for child labeling questions as $t = -.81$ (df = 12, n.s.), and child questions related to the story as $t = 1.26$ (df = 12, n.s.).

The final hypothesis for this study was that the total parent-child interactions would be higher in the storybook rather than the computer storybook condition. Paired t-tests were performed to analyze the data. The results showed no significant difference for the use of parent scaffolding strategies when reading a paper storybook as compared to a computer storybook. Paired t-tests results were reported as, $t = -.622$ (df = 12, n.s.).

Chapter 4

Discussion

Summary of Results

Although the books selected for each context were by the same author
and had the same number of pages, the computer version took twice as long to
complete. It is surprising that the parent-child dyads were not found to engage in
any more scaffolding strategies in the longer time period.

As a group children in the computer context asked more questions and
labeled items more and mothers made more comments. These group differences
warrant further study with a larger sample. The small size of this sample does
limit the usefulness of the results.

Liddicott (1991) had reported that less total parent-child interaction took
place with televised book reading. However, children showed more interaction
with the televised books. The results of this study suggest similar findings and
warrant further study.

The paper storybook revealed a greater amount of significant correlations
among scaffolding strategies than the computer storybook. The computer
storybook received only one significant correlation among scaffolding strategies.
No significant correlations were found in parent scaffolding strategies when
reading a paper storybook as compared to a computer storybook.

Computer research (Clements, 1987) has indicated that young children
prefer interactive-animated problem-solving programs which was not the design

with the book chosen in this study. Higher levels of children who initiated scaffolding strategies might have been found.

Recommendations

Because this study had a small sample size, it is recommended that other studies be done using a larger sample size. One might consider looking at the parent's knowledge and familiarity with computers. Is the parent computer literate? That is one question that may explain the parent's involvement in the computer storybook reading. Based upon evaluation of verbal cues and body language it appeared that many parents were uncomfortable in the computer setting. Some parents stated their unfamiliarity of computers while others appeared very tense and hesitant when asked to sit in front of the computer. In addition, this version of a computerized storybook did not invite parents to make changes or engage in the materials used, more interactive computerized storybook in the future might change the results.

There are a few qualitative differences that one may examine in the future. Consider the comfort level of the parent and child when reading a paper storybook. Have a rocking chair, or recliner accessible. Does the child sit on the mother's lap during the storybook reading or beside her? The quality of the setting in which the reading takes place may influence the amount of interaction. The time of day in which the storybook reading takes place may affect the attentiveness of the child. These are all recommendations that could have affected the outcome of this study.

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TABLES

Table 1

Summary of Family Demographic Variables (n = 13)

Variable	Frequency
Child's Age (mos.)	
24-30 mos.	5
31-36 mos.	6
37-42 mos.	2
Child's Gender	
Female	8
Male	5
Child's Ethnicity	
Caucasian	11
Native American	1
Biracial/Multiracial	1
Relationship to Child	
Mother/Stepmother	12
Grandmother	1
Parent's Age (yrs.)	
20-30	4
31-40	7
41-50	2
Marital Status	
Married	11
Divorced	2
Parent's Ethnicity	
Caucasian	11
Native American	1
Biracial/Multiracial	1
Employment Status	
Not employed outside of home	1
Part-time	1
Full-time	11
Highest Level of Education Completed	
Some college	2
Two-year degree	4
Four-year degree	1
Graduate college	6

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Table 2

<u>Summary of Statistics for Variables in the Family Survey Regarding Reading Exposure</u>

Variable	n	%
1. Age child was first read to		
0-3 mos.	9	69.3
3-6 mos.	2	15.4
6-9 mos.	2	15.4
2. How often child is read to		
Daily	9	69.2
2-6 times/week	3	23.1
Once a week	1	7.7
3. Number of stories parent/child looks at when reading		
1-2	2	15.4
2-3	7	53.9
3-5	2	15.4
8-10	2	15.4
4. Number of books child owns		
1-20	2	15.4
20-40	2	15.4
40-60	2	15.4
100+	7	53.8
5. How often child goes to library		
2-4 times/month	2	15.4
1-11 times/year	5	38.5
Once a year	5	38.5
Never	1	7.7

Table 3

Summary of Statistics for Variables in the Family Survey Regarding Computer Exposure

Variable	n	%
1. Do you have a computer in the home?		
Yes	11	84.6
No	2	15.4
2. How often child uses computer		
Daily		
2-6 times/week	4	30.8
Once a week	2	15.4
2-4 times/month	1	7.7
1-11 times/year	2	15.4
Once a year	2	15.4
None	2	15.4
3. Does an adult assist the child?		
Yes	10	76.9
No	1	7.7
4. Who assists the child?		
Mother/Stepmother	3	23.1
Father/Stepfather	2	15.4
Mother and Father	5	38.5
5. Number of children in the home		
1	8	61.5
2	5	38.5
6. Does an older sibling assist the child		
Yes	2	15.4
No	11	84.6
7. Do you own any children's software?		
Yes	7	53.8
No	6	46.2
8. Where besides the home is the child exposed to computers?		
Parent's office	2	15.4
School	2	15.4
Other	2	15.4
No opportunity	6	46.2

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Table 4

Descriptive Statistics for Parent-Child Interactions

Behavior	Paper Storybook		Computer Storybook	
	Mean	Standard Deviation	Mean	Standard Deviation
Child labeling	1.23	2.71	2.08	3.84
Repetition	4.08	4.39	3.00	3.44
Child questions	.38	.77	1.62	2.18
Mother's labeling	8.62	11.21	7.85	11.90
Mother's questions	1.92	3.01	1.62	2.18
Tag questions	--	--	.31	.85
Acknowledgement	2.00	1.96	2.31	2.14
Oral Dialogue	1.00	1.83	--	--
Comments	9.77	10.08	14.92	13.47

n = 11

Table 5

Paper Storybook Correlations Among Scaffolding Strategies

	Child Labeling	Repetition	Child Questions	Mother's Labeling	Mother's Questions	Acknowledgement	Oral Dialogue	Comments
Child Labeling	--	77**	-.21	.14	.61*	.05	.71**	.115
Repetitions		--	.07	.54	.46	.35	.62*	.01
Child Questions			--	.40	.16	.67*	.18	.14
Mother's Labeling				--	.14	.47	.49	.10
Mother's Questions					--	.47	.61*	.16
Acknowledgement						--	.30	.38
Oral Dialogue							--	.33
Comments								--

* p < .05; ** p < .01

Table 6

Computer Storybook Correlations Among Scaffolding Strategies

	Child Labeling	Repetition	Child Questions	Mother's Labeling	Mother's Questions	Acknowledgement	Oral Dialogue	Comments
Child Labeling	--	.28	-.24	-.07	-.10	-.10	-.23	-.12
Repetitions		--	-.19	.18	-.03	-.07	.13	-.10
Child Questions			--	-.01	-.28	-.04	.06	.56*
Mother's Labeling				--	.28	.24	.25	-.02
Mother's Questions					--	.35	.19	.04
Acknowledgement						--	.13	.02
Oral Dialogue							--	n/a
Comments								--

* p < .05; ** p < .01

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Table 7

Correlations Among Print/Computer Exposure, PPVT-R, Total Paper Storybook Scaffolding Strategies, & Total Computer Storybook

Scaffolding Strategies

	Print/Computer Exposure	PPVT-R	Total Paper Storybook Scaffolding Strategies	Total Computer Storybook Scaffolding Strategies
Print/Computer Exposure	--	.21	.01	.17
PPVT-R		--	.36	.37
Total Paper Storybook Scaffolding Strategies			--	.43
Total Computer Storybook Scaffolding Strategies				--

** $p < .05$; **$p < .01$

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APPENDIXES

APPENDIX A

CHILD/PARENT INFORMATION
All information is confidential.

Background Information About Your Child:

Child's Age:_____(Months)
Child's Gender: Female   Male
Child's Ethnicity/Racial:
Caucasian   African-American   Latina/o
Native American   Biracial/Multiracial
Asian   Other_____

Background Information About Parent:

Relationship to Child:
Mother/Stepmother   Father/Stepfather
Grandmother   Grandfather   Other_____
Age:_____
Gender: Female   Male
Marital Status:
Single/Never Married   Married   Single with partner
Separated   Divorced   Widowed
Racial/Ethnicity:
Caucasian   African-American   Latino/a
Native American   Biracial/Multiracial
Asian   Other_____
Employment Status:
Not employed outside of home   Part-time   Full-time
Indicate the highest level of education completed:
Less than   High   Vocational   Some   Two-Year   Four-Year   Graduate
H.S.   School   School   College Degree   Degree   Degree

APPENDIX B

Family Survey

1. How old was your child when you started to read to him/her? _____months

2. How often do you read with your child or look at books or magazines

   together? (Please circle one)

   | Daily | 2-6 times a week | once a week | 2-4 times a month | 1-11 times a year | once a year |

3. How many stories do you usually look at each time you and your child sit down

to read?_____

4. How many books does your child own?_____

5. How often do you take your child to the library? (Please circle one)

   | Daily | 2-6 times a week | once a week | 2-4 times a month | 1-11 times a year | once a year |

6. Do you have a computer in the household? Yes_____ No_____

   If yes, how many?_____

7. Who in your household uses the computer?_____

   _____

8. How often does your child use the computer? (Please circle one)

   | Daily | 2-6 times a week | once a week | 2-4 times a month | 1-11 times a year | once a year |

9. Does an adult assist your child in computer tasks? Yes_____ No_____

10. Who usually assists?

    Mother/Stepmother_____   Father/Stepfather_____

    Other adult in house_____

11. How many children are in the home?_____

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12. What is the age of each child in the home?_____

_____

13. Does an older sibling assist your child in computer tasks? Yes____ No____

14. Do you own any children's software? Yes_____   No_____

If yes, please list software.

_____

_____

_____

15. Where, besides the home, is your child exposed to computers?_____

_____

APPENDIX C

Adaptation of Two Parent Scaffolding Scoring Systems

Paper Storybook or Computer Storybook (circle)
Male or Female (circle)
Start Time_____
End Time_____
Interruptions_____

BEHAVIOR	COUNT
A. Labeling Ex. Child: "What's that?" Mother: "Man with a balloon."	
B. Repetition Ex. Child: "A boy." Mother: "A boy." Child: "A yellow boy." Mother: "A yellow boy."	
C. Answering Questions Ex. Child: "Big Bird goes to school?" Mother: "Big Bird doesn't go to school, even though he wishes he could."	
D. Labeling Questions Ex. Father: "What's that?" Child: "Frog."	
E. Parent Questions Ex. Mother: "Do you want to watch "Sesame Street.?" Mother: "Do you remember when the doctor used the stethoscope?"	
F. Tag Questions Ex. Mother: "He's the biggest, isn't he?"	
G. Acknowledgment - parents acknowledge the child's talk regardless of how and what was said.	
H. Oral Dialogue Ex. Adult relates brothers in the story to the child's own brothers.	
I. Comment - comment related to story with or without pointing	

APPENDIX D

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD

Date: October 20, 1999   IRB #:   HE-00-119

Proposal Title: "A LOOK AT PARENT-CHILD INTERACTIONS IN TWO DIFFERENT
                     STORYBOOK CONTEXTS"

Principal   Deborah Norris
Investigator(s):   Traci Hickman

Reviewed and
Processed as: Expedited (Special Population)

Approval Status Recommended by Reviewer(s):   Approved

Signature:

_____   ___October 20, 1999___
Carol Olson, Director of University Research Compliance   Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any
modification to the research project approved by the IRB must be submitted for approval. Approved projects are
subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review
Board.

VITA

Traci Lynn Hickman

Candidate for the Degree of

Master of Science

Thesis: PARENT-CHILD INTERACTIONS IN TWO DIFFERENT
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