INFLUENCE OF THE HOME LITERACY ENVIRONMENT ON PRE-KINDERGARTEN CHILDREN'S EMERGENT LITERACY SKILLS

by

JISU HAN

(Under the Direction of Stacey M. Neuharth-Pritchett)

ABSTRACT

The current study examined the influence of the home literacy environment on pre-kindergarten children's emergent literacy skills. Mother's educational level and children's initial differences in their emergent literacy skills at pre-kindergarten entry were taken into account. Parent-child interactions during shared book reading were examined as an important aspect of the home literacy environment. Five measures of emergent literacy skills were used: receptive vocabulary, expressive vocabulary, phonological awareness, letter-name knowledge, and letter-sounds knowledge. The results indicated that parents and children focused more on meanings of the story rather than printed letters during shared book reading suggesting that the influence of home literacy environment was explained by children's receptive and expressive vocabulary. The possible influences of mother's educational level and children's pre-kindergarten experiences on children's emergent literacy skills are also discussed.

INDEX WORDS: Home literacy environment, Pre-kindergarten, Emergent literacy, Mother's educational level, Shared book reading, Parent-child interactions

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DEDICATION

This thesis is dedicated to my family with all my love:

To my parents, grandmother, and sister.

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CHAPTER 1

Introduction

Children begin to develop an understanding of reading and writing before they enter formal schooling. From an early age, children engage in a variety of literacy activities that serve as a foundation for later reading and writing. An emergent literacy perspective recognizes the importance of children's experiences throughout their early years as a developmental process to become literate (Griffith, Beach, Ruan, & Dunn, 2008). Emergent literacy encompasses literacy-related skills, knowledge, and attitudes that young children demonstrate as precursors to reading and writing: vocabulary, phonological awareness, print concepts, prototypical letter recognition, and print motivation (Reese & Cox, 1999; Whitehurst & Lonigan, 1998). Young children's acquisition of these emergent literacy skills is an important foundation for their later language and literacy development, which has been found to be significantly related to their cognitive development and academic achievement as they transition into formal schooling (Bennett, Weigel, & Martin, 2002; Griffith et al., 2008; Scarborough & Dobrich, 1994).

In light of the significance of early literacy development, it is important to understand young children's literacy-related experiences at home so that we can promote their acquisition of emergent literacy skills. As a context in which children first encounter language and literacy, the home environment plays a crucial role in their early literacy development (Bennett et al., 2002; Weinberger, 1996). Children's engagement in a wide variety of home literacy activities such as shared storybook reading, play-based activities, and conversations with family members contribute to their acquisition of language and emergent literacy skills (Wood, 2002).

Although an increasing number of studies examine the impact of the home literacy environment on early literacy development, our current knowledge necessitates additional investigations on the role of home literacy because research has primarily focused on limited aspects of the home literacy environment such as the number of books in the home or frequency of storybook reading (van Steensel, 2006). By understanding more about the complex array of activities in children's home environments between children and their parents, we can provide information to parents to encourage them to become more involved in their children's literacy learning in an effective way. Pre-kindergarten teachers may also be able to connect their knowledge about children's home literacy experiences to their literacy instruction in the classroom so that they can develop home-school partnerships for facilitating smooth transitions in children's early literacy development.

A major challenge for studying home literacy is a lack of consensus on the conceptualization of home literacy (van Steensel, 2006). When considering that children's literacy learning occurs in a variety of settings and situations in the home (Saracho, 2002), the concept of the home literacy environment is very broad. Among multiple components of the home literacy environment, researchers often consider a limited number of dimensions. In particular, many researchers have focused on the availability of literacy resources in the home or parent-child storybook reading (Curenton & Justice, 2008). Although extensive examinations of these particular aspects of home literacy provide important findings regarding the impact of the home literacy environment in early literacy development, other components of home literacy remain under-investigated.

More recent studies based on a broader conceptualization of home literacy have emphasized diverse aspects of home literacy such as parental teaching activities, parents'

personal literacy practices, and parents' beliefs about literacy (van Steensel, 2006). In particular, parental involvement in teaching reading and writing has been found to significantly improve children's emergent literacy skills (Aram & Levin, 2002; Hood, Conlon, & Andrews, 2008). Parents may explicitly teach their children how to read and write a letter during shared book reading or in a more formal instructional setting (Senechal, Thomas, & Daley, 1998).

Although the home literacy literature has changed to include more diverse components of home literacy, parent-child shared book reading is still considered as one of the most valuable home literacy practices (Curenton & Justice, 2008; LeFevre & Senechal, 1999). Book reading practices have been found to have positive effects on young children's emergent literacy skills such as vocabulary and print interest by exposing them to vocabulary, syntax, story structure, and printed letters (Evans, Williamson, & Pursoo, 2008; Reese & Cox, 1999). Regarding the effect of shared book reading, while numerous studies have primarily focused on the frequency of being read to, the importance of the quality of book reading interactions between parents and children is now recognized (Reese & Cox, 1999). The current study furthers the acknowledgment of the important interactions surrounding shared book reading, specifically by asking parents to comment on individual behaviors in which they and their child engage while reading together.

The home literacy environment is often understood within a context of family socioeconomic status levels (SES). SES is a complex construct that consists of resources (education, income, and wealth) and relative status or rank such as social class (Committee on Pediatric Research, 2000). Although researchers often operationalize this construct in different ways, income, education, and occupation are frequently measured to represent SES (Bradley & Corwyn, 2002; Strenze, 2006). Despite some inconsistent findings regarding SES differences in home literacy, many studies have suggested that young children's emergent literacy skills differ

significantly among SES families and that these variations may partly be a result of SES differences in the home literacy environment (Aikens & Barbarin, 2008; Son & Strasser, 2002). Among diverse measures of home literacy, it is likely that young children's exposure to print-rich environments in the home is strongly influenced by their family socioeconomic characteristics (Neuman, 1996). Also, the quality of interactions between parents and children has been found to vary in families with different economic resources (Korat, Klein, & Segal-Drori, 2007). However, large group variations within a SES group should be noted as well (Baker et al., 1996).

The Current Study

The purpose of the current study was to examine the influence of home literacy on pre-kindergarten children's emergent literacy skills. Parent-child interactions during shared book reading were examined as an important aspect of the home literacy environment. In addition, several terms such as home literacy, home literacy practices, and home literacy experiences were used interchangeably with home literacy environment to indicate parent-child interactions during shared book reading. Children's emergent literacy outcomes were assessed using five different measures: receptive vocabulary, expressive vocabulary, phonological awareness, letter-name knowledge, and letter-sound knowledge. In exploring the role of home literacy, the influence of the home literacy environment on emergent literacy skills at both the beginning and the end of pre-kindergarten year was examined, as well as the influence of home literacy during this period, by taking into account children's initial performances. Additionally, mother's educational level, one of the important measures of SES, was taken into account as a possible contributing factor to children's acquisition of emergent literacy skills. Table 1 summarizes how the key terms were used in the present study: home literacy environment, emergent literacy, and SES. Based on the operationalization of these terms, four specific research questions guiding this study were the

following:

(1) What is the influence of home literacy on emergent literacy skills at both the beginning and the end of pre-kindergarten?

(2) What is the influence of home literacy on emergent literacy skills, when accounting for mother's education level, at both the beginning and the end of pre-kindergarten?

(3) What is the influence of home literacy on emergent literacy skills, when accounting for initial emergent literacy skills at pre-kindergarten entry, at the end of pre-kindergarten?

(4) What is the influence of home literacy on emergent literacy skills, when accounting for initial emergent literacy skills and mother's education level at pre-kindergarten entry, at the end of pre-kindergarten?

Answering these research questions will expand our knowledge about the role of home literacy in children's early literacy development. First, this study focused on the quality of the home literacy environment by examining parent-child interactions during shared book reading. Given the need for more research on the quality of the home literacy environment (Scarborough & Dobrich, 1994), findings on parents' and children's behaviors during shared book reading and their influences on emergent literacy skills will be able to fill this gap in the literature. Second, the current study highlighted multiple aspects of the home literacy environment by examining two different types of reading interactions depending on whether parents focus on meanings of the story or printed letter during shared book reading. In particular, parents' engagement in teaching letters or words during shared book reading is an important part of home literacy that needs to be examined. Third, while many previous studies about home literacy focused on a limited aspect of emergent literacy, this study considered a wide variety of emergent literacy skills including letter-name and letter-sound knowledge. This comprehensive approach will

allow us to examine the unique influence of home literacy on different domains of emergent literacy. Lastly, another significant contribution of this study to the research literature is that the study examined the influence of home literacy on children's emergent literacy skills particularly during the pre-kindergarten year. This research context will provide an advantage of understanding children's early literacy experiences in both home and pre-kindergarten contexts so that we may search for ways to best support young children's literacy development through home-school connections.

CHAPTER 2

Literature Review

Young Children's Literacy Development

Children's understandings of reading and writing begin at an early age. Long before children actually begin to read and write, they actively engage in exploring language, one of the most important tools for making sense of the world (Marvin & Mirenda, 1993; Storch & Whitehurst, 2001). Children's language and literacy abilities prior to formal schooling significantly predict their subsequent academic performance (Bennett et al., 2002; Scarborough & Dobrich, 1994; Storch & Whitehurst, 2001), suggesting the important role of early literacy in children's cognitive and academic development. Research on early literacy development has focused on understanding the process young children go through to acquire literacy as well as providing parents and teachers with instructional strategies for improving children's literacy competencies (Bennett et al., 2002; Griffith et al., 2008).

The perspective of emergent literacy has been widely used to contribute to an understanding of young children's acquisition of literacy long before formal schooling begins (Bennett et al., 2002; Marvin & Mirenda, 1993; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998). This view is an inclusive and developmentally grounded perspective on literacy that encompasses a variety of precursors occurring during the preschool years prior to reading and writing (Bennett et al., 2002; Storch & Whitehurst, 2001). Emergent literacy not only refers to the skills that precede reading and writing but also includes literacy-related knowledge, attitudes, and supportive literacy environments. Whitehurst and Lonigan (1998) distinguished

emergent literacy from another dominant viewpoint on early literacy, the reading readiness approach. They noted that while the reading readiness perspective focuses primarily on specific literacy skills children need to master to ready them for reading and writing, the emergent literacy perspective takes a broader approach to the construct. Further, while the reading readiness approach makes a distinction between prereading and reading, the emergent literacy perspective places more emphasis on continuous and developmental aspects of literacy development (Bennett et al., 2002; Whitehurst & Lonigan, 1998).

Components of emergent literacy include vocabulary, concepts about print, knowledge of letters, phonological awareness, syntactic awareness, print motivation, and emergent reading and writing. Whitehurst and Lonigan (1998) proposed that emergent literacy skills may be largely divided into two interrelated domains: outside-in skills (e.g., vocabulary) and inside-out skills (e.g., letter knowledge, phonological awareness). This distinction was made depending on whether sources of information came from outside the printed word or were located within the printed word. Whitehurst and Lonigan (1998) also found that among the literacy skills they examined, vocabulary, phonological awareness, and print knowledge strongly predicted children's later reading ability.

In addition, although oral-language skills have often been distinguished from written-language skills, there is a lack of consensus regarding whether these two constructs of language skills are separable (Senechal et al., 1998). Researchers in support of the emergent literacy approach may argue that oral- and written-language skills should not be separated (Senechal et al., 1998) on the basis of an assumption that reading, writing, and oral language develop simultaneously and interdependently (Whitehurst & Lonigan, 1998). However, a factor analysis conducted by Senechal et al. (1998) revealed different factors uniquely associated with oral- and

written-language skill suggesting related but separable constructs. Scarborough and Dobrich (1994) also noted that literacy and language are composites of interrelated but separable processes and skills.

Major domains of emergent literacy found to be particularly significant for literacy development include vocabulary, phonological awareness, and print knowledge including print concept knowledge and alphabet knowledge. The development of receptive and expressive vocabulary is essential in the acquisition of language and literacy. Children begin to learn new words at an early age, and their vocabulary knowledge develops dramatically during the preschool years. It has been reported that children acquire about ten new words per day during this period (Griffith et al., 2008). Also, exposure to narrative and expository contexts has been found to facilitate vocabulary growth, as can be seen from the close relation between frequency of reading and children's vocabulary performance (Senechal, LeFevre, Hudson, & Lawson, 1996).

Phonological awareness refers to sensitivity to speech sounds. The development of phonological awareness involves recognizing rhymes and beginning sounds and manipulating the sound structure of oral language by combining sounds into words or breaking words down into individual sounds (Griffith et al., 2008). Children's phonological awareness skills have an impact on their word-level reading skills (Bowey, 1995; Sonneschein & Munsterman, 2002). Senechal and LeFevre (2002) found that phonological awareness has bidirectional relationships with vocabulary and emergent literacy skills. In order to enhance children's phonological sensitivity, activities that help children become familiar with similar sound patterns such as rhyming activities have been encouraged (Bowey, 1995).

Print knowledge is a relatively large domain of emergent literacy that includes print

concept knowledge, alphabet knowledge, and emergent writing (Justice, Kaderavek, Fan, Sofka, & Hunt, 2009). Levy, Gong, Hassels, Evans, and Jared (2006), in their study of young children's understanding of print, found that children begin to develop their print knowledge long before formal instruction. For example, by the age of four children demonstrated their understanding that writing has conventions that should be followed. Their study also reported that children's print knowledge was related to their early reading skills, after accounting for age and phonological awareness skills.

More specifically, print concept knowledge refers to information about conventions of written language and their functions. For example, children should learn how to turn pages in books and scan pages when reading books (Sonnenschein & Munsterman, 2002). Bus, van IJzendoorn, and Pellegrini (1995) suggested that children's exposure to books during parent-child shared reading significantly contributed to children's development of print concept knowledge. In addition, alphabet knowledge indicates knowledge about names and features of individual alphabet letters (Justice et al., 2009). Alphabet knowledge is comprised of the ability to distinguish letters based on their visual features (letter-shape knowledge), understand that a letter is a symbol with upper and lowercase forms (letter-name knowledge), understand that letters represent sounds (letter-sound knowledge), and write letters (letter-writing abilities) (Bradley & Jones, 2007; Griffith et al., 2008). Curenton and Justice (2008) noted that children's alphabet knowledge is uniquely associated with their later word recognition skills.

Home Literacy Environment

Children's literacy experiences begin in their home environments long before they begin formal schooling. The home literacy environments young children are exposed to have significant impacts on their early literacy development (Bingham, 2007; Burgess, Hecht, &

Lonigan, 2002; van Steensel, 2006). Children from stimulating home literacy environments are more likely to benefit from frequent engagements in literacy activities and positive interactions with family members. The varying home literacy experiences of children are often considered as reasonable explanations for wide initial differences in emergent literacy skills of children entering formal schooling (Burgess et al., 2002). Given the importance of early literacy development, it is not surprising that a growing body of literature has documented the relationship between the home literacy environment and children's literacy development (Saracho, 2002; Weigel, Martin, & Bennett, 2006). These studies have highlighted the crucial role of home literacy practices in the language and literacy development of young children. More importantly, previous studies examining home literacy environment have provided implications regarding the kinds of familial support that will effectively promote children's acquisition of emergent literacy skills, information that would be of great interest to parents and educators.

Discussion of the home literacy environment involves the process of making the concept explicit with regard to the factors that should be included in the construct. Although the definition of the home literacy environment varies depending on the focus of a study, there has been a noticeable change in the conceptualization of the concept (Burgess et al., 2002). That is, while only a single or a few measures of literacy practices, including the frequency of parent-child shared book reading, were considered in early conceptualizations of the home literacy environment, recent studies have stressed the importance of examining its multiple and complex aspects (Bennett et al., 2002; Rodriguez et al., 2009; Weigel et al., 2006). Researchers in support of a broader conceptualization assert that many studies are still focusing on a limited dimension of home literacy experiences, which results in a partial understanding of the multifaceted nature of the home literacy environment (Stephenson, Parrila, Georgiou, & Kirby, 2008; van Steensel,

2006). Researchers further suggest that a more inclusive view of the home literacy environment would enable us to find a stronger link between children's literacy experiences at home and their literacy development, a connection that has not been explained from narrower perspectives (Burgess et al., 2002).

Multiple Aspects of the Home Literacy Environment

Families can support children's literacy development in diverse settings by providing them with a variety of literacy-related resources and activities (Saracho, 2002). Multiple components of the home literacy environment include access to age-appropriate literacy materials, shared book reading, parental teaching of reading and writing, parents' personal engagement in literacy activities, parents' beliefs and attitudes toward literacy, family conversations, watching educational television programs, rhyming, and singing children's songs, some of which will be discussed below (Aram & Levin, 2002; Baker et al., 1996; Marvin & Mirenda, 1993; Saracho, 2002; van Steensel, 2006). In addition, literacy experiences outside the home such as visits to a library, bookstore, or museum also contribute to the family's contribution to the child's literacy acquisition (Baker et al., 1996; Rodriguez et al., 2009; Saracho, 2002; Weinberger, 1996).

It is essential that age-appropriate literacy materials are available in the home as they are important tools for facilitating children's engagement in literacy activities and parent-child interactions (Rodriguez et al., 2009). These literacy materials include a sufficiently wide selection of books such as storybooks or picture books, writing utensils, educational toys, and a computer (Marvin & Mirenda, 1993; Rodriguez et al., 2009; Weinberger, 1996). Evans, Kelley, Sikora, and Treiman (2010) noted that family scholarly culture, as indicated by the number of books in the home, significantly influenced children's educational success. It should also be

noted that although the number of books in the home has often been used as a representative measure of literacy materials in the home, other printed materials accessible in everyday settings such as newspapers, catalogs, or advertisements effectively provide children with literacy learning opportunities (Saracho, 2002). With regard to the measure of the number of books at home, Park (2008) pointed out that this assessment should be interpreted with caution by considering the degree to which it reflects a family's economic power to purchase books. Similarly, although Weinberger (1996) found a positive relation between access to computers at age seven and children's reading levels, it was unclear from her study whether the finding was due in part to families' underlying economic features. In addition, the effects of young children's access to computers on their literacy development need to be further examined.

Parent-child shared book reading is an enduring aspect of home literacy that has received the most attention (Curenton & Justice, 2008; LeFevre & Senechal, 1999; Stephenson et al., 2008). In particular, studies based on early conceptualizations of the home literacy environment have focused primarily on the frequency of children's engagement in shared book reading with their parents as an indicator of the nature of a particular home's literacy environment (Aram & Levin, 2002; van Steensel, 2006). Indeed, researchers have provided theoretical and empirical evidence of benefits of shared reading practices. Bus and her colleagues' quantitative meta-analysis (1995) on parent-preschooler book reading indicated that, in general, shared book reading explained about 8% of the variance in the literacy outcome measures of children.

During shared book reading, young children have opportunities to develop their vocabulary and motivation for reading, which may positively affect their later reading skills (Hood et al., 2008; Senechal & LeFevre, 2002). The strong link between shared book reading and vocabulary acquisition has been particularly well documented. For example, Senechal,

LeFevre, Hudson, and Lawson (1996), in their study of parents' and children's knowledge of storybooks, found that preschoolers' exposure to storybooks was a powerful predictor of their receptive and expressive vocabulary scores. In addition, there appears to be a common understanding among parents as well as researchers that shared book reading effectively facilitates young children's development of emergent literacy and language skills (Deckner, Adamson, & Bakeman, 2006; Scarborough & Dobrich, 1994). A study examining home literacy practices of mothers of 27-month-old toddlers found that all 55 mothers participating in this study highly valued shared reading as a central literacy activity in the home (Deckner et al., 2006).

In view of a more inclusive concept of the home literacy, parental involvement in teaching has been increasingly highlighted as another significant category of the home literacy environment. Many different terms including parent involvement, parent coaching, and parent teaching have been used to indicate parents' engagement in explicit instruction about reading and writing (Senechal et al., 1998). As Senechal et al. (1998) suggested, the term *parental teaching* will be used in the current study to reflect instructional aspects of this type of literacy activity in a more comprehensive way. Senechal et al. (1998) discussed distinct characteristics of parental teaching activities by making a distinction between two different kinds of home literacy experiences: informal and formal literacy activities. According to their view, the distinction is made depending on whether the focus of the parent-child interaction is primarily on the print itself or on the exchanged message during the interaction. For example, shared book reading is considered an informal literacy activity because the parent and child focus mainly on messages conveyed in the story. On the other hand, when the parent explicitly teaches the child how to sound or write specific letters using alphabet books, their attention is primarily placed on the

printed letters themselves.

However, it is also important to note that these two types of interactions with print are not necessarily mutually exclusive (Senechal et al., 1998). For example, parents may focus on content of the story during shared storybook reading, while they may simultaneously encourage their children to pay attention to printed letters. As children approach the age at which formal schooling begins, parents are expected to engage more frequently in explicit parental teaching activities (Hood et al., 2008). Despite increasing efforts to understand this formal dimension of home literacy experiences, many issues surrounding parental teaching remains unexplored, compared to a thorough investigation that has been made to shared book reading (Senechal & LeFevre, 2002).

As an important component of the home literacy environment, parents' own literacy practices have been found to be associated with their children's language and literacy development. Burgess et al. (2002) proposed a way of characterizing home literacy experiences in terms of the child's role in learning: passive and active home literacy environments. While the active home literacy environment involves children's direct participation in literacy activities, the passive environment engages children in indirect learning through observation of adult models. For example, the child who observes his or her parent read a book regularly is more likely to recognize the value of literacy.

A study of Dutch children conducted by van Steensel (2006) found that whether parents or older siblings read frequently for personal purposes significantly influenced children's achievement on a vocabulary test. The author's interpretation of this finding was that adults who engaged more frequently in personal literacy activities used a richer vocabulary in their daily lives, resulting in positive impacts on their children's vocabulary development. In addition, a

longitudinal study of children's home literacy experiences (Weinberger, 1996) suggested that 7-year-old children who reported seeing someone reading at home demonstrated significantly higher reading levels than those of children who did not have literacy models in the home. However, there is an inconsistent finding regarding the degree to which parents' own reading practices influence their children's literacy. Payne, Whitehurst, and Angell (1994) found a low correlation between adult reading practices and child language acquisition, which suggested that children benefit much more from the literacy practices that engage them as a major participant compared to when they play a passive role as an observer.

Parents' beliefs and attitudes toward literacy, as well as their personal literacy practices, play significant roles in creating stimulating literacy environments in the home. According to a study examining the relations among parental reading beliefs, parental literacy habits, parent-child literacy activities, and children's language skills (Weigel et al., 2006), parents who held positive views about reading were more likely to actively engage in literacy activities with their children. Another study of maternal literacy beliefs (Bingham, 2007) also reinforced the positive link between parents' literacy beliefs and practices. In particular, this study further found that the relation between maternal literacy beliefs and home literacy practices was domain specific. For example, mothers' beliefs regarding effective book reading practices were not related to the frequency of home literacy activities but to the quality of parent-child interactions. In addition, empirical evidence suggests that parental literacy beliefs are directly associated with children's emergent writing and receptive language (Weigel et al., 2006) and motivation for reading (Baker & Scher, 2002).

Quality of Home Literacy Activities

While many previous studies of the home literacy environment mainly investigated the

frequency of literacy activities, increasing attention has been focused on the quality of home literacy activities (Bingham 2007; Curenton & Justice, 2008). For example, in a study examining the contribution of home literacy practices to preschoolers' language and emergent literacy skills, Roberts, Jurgens, & Burchinal (2005) used measures representing qualitative aspects of home literacy practices as well as the frequency of shared book reading; that is, the child's interest in reading, maternal book reading strategies, maternal sensitivity, and overall responsiveness of the home environment were included. They found that the overall quality and responsiveness of the home literacy environment strongly predicted preschool children's emergent literacy skills.

Indeed, recent studies have consistently provided evidence that the quality of parent-child interactions during literacy activities significantly matters in promoting young children's language and literacy development (Baker, Mackler, Sonnenschein, & Serpell, 2001; Bingham, 2007; Roberts et al., 2005; Sonnenschein & Munsterman, 2002). In particular, although much less is known about the quality of these communications during parental teaching practices and other literacy activities, the affective quality of parent-child interactions during shared book reading has been studied (Hood et al., 2008). High-quality reading interactions may be characterized by interactions between the sensitive, responsive, and supportive parent and the active and engaging child (Curenton & Justice, 2008). A study by Sonnenschein and Munsterman (2002) revealed that enjoyable and engaging reading interactions at home, as indicated by reading expression, physical contact, and the parent's sensitivity to the child's involvement, significantly enhanced 5-year-old children's reading motivation. Similarly, Baker et al. (2001) found that the first graders' engagement in affective storybook interactions with their parents predicted the frequency of their later reading of chapter books in third grade. These findings suggest that young children's experiences with high-quality interactions in a pleasant atmosphere

facilitate their literacy learning and positive attitudes toward literacy.

The different types of talk parents use when reading to their children provide clues for understanding the quality of the reading interactions (Baker et al., 2001). The nature of parents' remarks during shared book reading may be largely classified into talk about the content and talk about the print itself, focusing on word recognition (Baker et al., 2001; Sonnenschein & Munsterman, 2002). Talk about text meaning, which has been found to be more commonly practiced by parents, is further categorized into immediate content talk and non-immediate content talk (Baker et al., 2001; Korat et al., 2007; Sonnenschein & Munsterman, 2002). Immediate talk focuses on explicit and specific facts in the text, while non-immediate talk extends beyond the content presented in the text. For example, when using immediate talk, parents may elaborate on the sentence that has just been read. Parents employing non-immediate talk, on the other hand, may encourage their children to make predictions about the story and relate it to their children's personal experiences.

Baker et al. (2001) examined the relation between types of talk occurring during reading interactions and the affective quality of shared book reading. Their study found that parents and children who talked more about non-immediate content created more affective atmospheres, while talk focusing on basic skills such as word recognition was associated with poorer quality of reading interactions. Interestingly, by considering talk about illustrations separately instead of including it in immediate talk, the authors revealed that talk about illustrations was positively associated with the affective reading interactions. They also found that the parents of first-grade children participating in the study more frequently engaged in parent-child exchanges about the books' pictures than in any other kinds of meaning-related talk.

However, it should also be noted that the type of talk during reading interactions may be

affected by other factors such as text type and familiarity with the book (Neuman, 1996; Sonnenschein & Munsterman, 2002). The Neuman study (1996) found that patterns of parent-child book reading differed depending on text type, implying that shared book reading occurred between parent, child, and text. For example, parents and children who read highly predictable stories paid more attention to the rhymes and rhythms of text, while those reading narrative texts had more frequent immediate or non-immediate talk about the meaning of the story. These findings show that the type of parents' utterances observed during a particular book reading setting may not necessarily reflect the overall quality of parent-child reading interactions in the home.

Relations between the Home Literacy Environment and Early Literacy Development

As can be seen in the preceding discussion of specific components of the home literacy environment, its important role in developing early language and literacy skills has been widely supported. Individual studies tend to focus on different aspects of the home literacy environment and emergent literacy skills, but findings of these studies commonly highlight a close link between home literacy experiences and children's literacy acquisition. Although a study examining young early readers in the United Kingdom indicated no significant differences in the home literacy experiences of young early readers and non-early readers (Stainthorp & Hughes, 2000), this finding should be interpreted carefully by considering that only 29 children from a particular setting participated in the study. Further, a single measure of early reading performance may not fully represent multiple dimensions of early literacy development. Thus, this study may not provide sufficient evidence to reject the role of the home literacy environment consistently supported in numerous other studies.

Denton, Reaney, and West (2001) found that home educational activities and literacy

resources had positive effects on language knowledge and skills of kindergarten children, as assessed in a variety of dimensions including print familiarity, letter/word recognition, rhyming sounds, vocabulary, and comprehension. Bennett et al. (2002) investigated a theoretical model proposed by previous research, the Family as Educator, which includes literacy activities, parental reading beliefs, and parental education. The study's findings supported the premise that this model was significantly related to literacy acquisition of preschool children from middle-income families. Additionally, a crucial role for the home literacy environment could be generalized across different national settings. A comparative study of 25 countries (Park, 2008), for example, found that the home literacy environment had positive influences on fourth graders' reading performances in most countries examined. The home literacy environment in this study included early literacy activities prior to school entry, parental attitudes toward reading, and the number of books in the home.

The close relationship between the literacy environment and children's language abilities emerges at an early age. A longitudinal study of literacy experiences of young children in their first three years revealed that literacy activities, maternal quality of engagement, and the provision of learning materials were positively associated with children's emergent literacy outcomes at 14, 24, and 36 months of age (Rodriguez et al., 2009). Based on these findings, the authors supported the idea that children's early literacy experiences have cumulative effects on their language and literacy development within and across developmental stages. In other words, literacy experiences accumulated over time, as well as multiple aspects of the literacy environment at distinct time points, influence children's literacy acquisition. In light of its additive effects, the importance of providing children with a rich home literacy environment from an early age should be further acknowledged (Burgess et al., 2002).

In addition, LeFevre and Senechal (1999) examined long-term consequences of the home literacy environment, revealing the relationships among home literacy factors, emergent literacy skills, and reading acquisition. According to their findings, home literacy variables measured at the beginning of kindergarten directly related to children's early literacy skills at the beginning of the first grade, and the acquisition of these literacy skills mediated the relationship between home literacy factors and children's reading abilities at the end of the first grade. Although this study demonstrated an indirect relation between the home literacy environment and children's subsequent reading, a direct association has been reported as well (Park, 2008).

With regard to the strength of the relationship, research by Payne et al. (1994) revealed that the home literacy environment accounted for from 12 to 18.5 percent of the variance in language scores of 4-year-old children enrolled in Head Start programs. In another study examining the same population, Storch and Whitehurst (2001) found that 40 percent of the variance in Head Start children's language skills was explained by home and family factors. The strength of the relationship reported in the latter study was noticeably larger than previously suggested estimates, which may have been due to the inclusion of other family factors (parental expectations for children's school success and parental characteristics) as predictors, a more comprehensive conceptualization of the home literacy environment, and a methodological choice of using structural equation modeling (Storch and Whitehurst, 2001).

Given the importance of considering multiple components of the home literacy environment and emergent literacy skills, it is not surprising that recent studies have begun to examine which aspects of home literacy experiences are associated with particular domains of early literacy development (Bingham, 2007; Hood et al., 2008; LeFevre & Senechal, 1999; Senechal et al., 1998; Senechal & LeFevre, 2002; Stephenson et al., 2008; Weigel, 2006).

Specifically, many studies have focused on differential effects of storybook exposure and parental teaching practices on children's emergent literacy skills. As mentioned previously, parent-child shared book reading and parents' explicit teaching of reading and writing are central literacy practices that take place at home.

Stephenson et al. (2008) argued that parental teaching may not be independent of shared book reading in that parents engage in direct teaching during book reading. Although Senechal and her colleagues (1998) also agreed that shared book reading and parental teaching could occur simultaneously, the findings of their study indicated no correlation between these two kinds of home literacy practices (LeFevre & Senechal, 1999; Senechal & LeFevre, 2002). That is, parents who read a storybook with their children did not necessarily provide explicit instruction in reading and writing. In another study (Hood et al., 2008) extending the model proposed by Senechal and LeFevre (2002), the authors similarly found a very low correlation between shared book reading and parental teaching practices. These findings suggest that a distinction between these two types of literacy practices may be made by parents according to their beliefs about literacy and language learning (Senechal et al., 1998).

Research indicates that parent-child shared book reading and parental teaching activities have unique influences on different domains of emergent literacy skills (Hood et al., 2008; LeFevre & Senechal, 1999; Senechal et al., 1998; Senechal & LeFevre, 2002). As suggested by Senechal et al. (1998), shared book reading predicted children's oral-language skills (receptive vocabulary, listening comprehension, and phoneme awareness), while parental teaching practices were related to children's written-language skills (concepts about book reading, alphabet knowledge, invented spelling, and decoding). Consistent with this finding, Hood et al. (2008) revealed that parental reading practices during the preschool years were directly associated with

children's receptive vocabulary in the first grade but not with other emergent literacy skills. On the other hand, parental teaching of letters and words were independently related to preschool children's letter-word identification skills but not to their receptive vocabulary. The finding that different aspects of home literacy experiences had direct effect on diverse domains of language and literacy skills suggests that focusing on a single aspect of the literacy environment may not be sufficient for promoting children's literacy development (Senechal & LeFevre, 2002). For example, parents' engagement in shared book reading may enhance their children's vocabulary, but it may not necessarily ensure their children's acquisition of letter knowledge. In addition to storybook reading, parents are expected to participate in more formal teaching activities as well to support their children's development of emergent literacy skills (Hood et al., 2008; Stephenson et al., 2008).

Influence of Family Characteristics

The discussion of the home literacy environment and children's language and literacy development often involves the consideration of individual children's family characteristics. In particular, family socioeconomic status (SES) levels have been a focus of investigation. A substantial number of studies have documented SES differences in children's language and literacy outcomes (Aikens & Barbarin, 2008; Bowey, 1995). Although there is a lack of agreement on the operationalization of SES, family income, parental educational level, and parental occupational status are the major variables measured to indicate SES, especially in studies of the home literacy environment and literacy development (Aikens & Barbarin, 2008; Curenton & Justice, 2008; Son & Strasser, 2002).

The literature suggests that a higher SES is more likely to be associated with higher levels of language competencies (Aikens & Barbarin, 2008; Bowey, 1995; Korat et al., 2007). A

study of Israeli children from two different SES groups found that SES, the study's strongest predictor, explained 20% of the variation in children's emerging literacy skills (Korat et al., 2007). Although the Israeli social context's very wide socioeconomic differences should be taken into account, the finding suggests the role of the family's SES levels in children's literacy development. Also, Bowey's work (1995) specifically focused on SES differences in children's development of phonological sensitivity. The results indicated that SES differences in phonological abilities of preschoolers remained significant, even after performance IQ and general verbal ability were statistically controlled.

By considering the contribution of family, neighborhood, and school contexts, Aikens and Barbarin (2008) longitudinally investigated the impact of SES on children's early reading outcomes. This work found that children from higher SES families demonstrated higher reading scores on initial assessments at the beginning of kindergarten, as well as having greater rates of reading growth over time than lower SES children. More interestingly, this study revealed that although school and neighborhood contexts contributed more to SES differences in children's subsequent learning rates, SES differences in children's initial reading outcomes in kindergarten were best explained by family variables including measures of the home literacy environment. Their findings suggest that the relation between SES and young children's initial reading outcomes may result from their home literacy environments (Aikens & Barbarin, 2008). The work by Son and Strasser (2002) provided a consistent finding regarding the mediating role played by the home literacy environment in the influence of SES on emergent literacy skills. It is also important to note, however, that a direct relationship between SES and reading skills remained significant, even after taking into account the role of the home literacy environment.

Researchers have investigated SES differences in several aspects of the home literacy

environment: literacy resources, home literacy practices, and parental literacy beliefs. Children's access to literacy materials in the home or community varies considerably depending on their socioeconomic backgrounds (Denton et al., 2001; Neuman, 1996; Son & Strasser, 2002). A study of kindergarteners' home educational activities and access to literacy resources (Denton et al., 2001) found that a significantly larger number of children in poverty, compared to non-poor children, had less than the average number of children's books in their homes. Limited access to literacy materials may severely restrict young children's engagement in stimulating literacy activities or interactions surrounding those materials (Neuman, 1996; Son & Strasser, 2002).

With regard to home literacy practices in families of varying SES levels, the literature has reported mixed results. Denton et al. (2001) measured how frequently parents engaged in reading, singing, and telling stories to their kindergarten children. Their study found that although parents generally demonstrated high levels of engagement in their children's literacy learning, parents from lower SES families were less likely than higher SES parents to participate frequently in those activities. Among the three kinds of literacy activities examined in this study, the most significant difference between SES levels was found in the category of reading to children.

In contrast, the work by Collins and Svensson (2008) revealed that the home literacy experiences of 10 early competent readers in the United Kingdom did not differ significantly, even though they came from different socioeconomic groups. Although this study was conducted by interviewing only a small number of children and parents from a particular population, the finding that low SES parents, as well as high SES parents, were highly involved in their children's literacy may suggest a weak association between SES and home literacy practices. Similar home literacy practices across different sociocultural groups was also supported by Hood

et al.'s (2008) study of preschoolers' home literacy practices, although they did not directly compare differences across SES.

In particular, the quality of home literacy practices has been examined in relation to different SES levels. Korat et al. (2007) found a difference in the way mothers with different levels of SES interact with their children during shared book reading. That is, mothers with low SES tended to use immediate talk more often by paraphrasing the text, while high SES mothers were more likely to employ non-immediate talk by going beyond the literal meaning of the text. This is consistent with Baker et al.'s (2001) finding that the frequency of non-immediate talk was positively correlated with mothers' educational and income levels. Recalling that the frequent use of non-immediate talk enhanced the quality of reading interactions, these studies suggest that children from low SES families may experience lower quality of reading interactions at home. In fact, Baker et al. (2001) further reported that the affective atmosphere of parent-child reading interactions was more positive in higher SES families.

In addition, previous studies have suggested that family sociocultural characteristics may influence parents' beliefs and attitudes toward literacy. Curenton and Justice (2008), in their study of low-income families residing in an Appalachian community, highlighted the influence of mothers' educational levels on their beliefs about shared reading. More educated mothers possessed more positive beliefs about the benefit of reading and their own skills as literacy teachers of their children in comparison to less educated mothers, and these differing beliefs contributed to group differences in these preschooler's emergent literacy skills.

Similarly, Baker et al. (1996) discussed literacy perspectives of parents with different income levels. Their findings indicated that middle-income parents were more likely to view literacy as a source of entertainment, while many low-income parents tended to focus more on

the acquisition of specific literacy skills. Their examination of literacy competencies of the pre-kindergarten children in these families further suggested that parental beliefs placing more emphasis on enjoyable aspects of literacy were associated with better child outcomes on measures of print knowledge and story understanding.

Despite their findings demonstrating an SES difference in parents' beliefs about reading, Baker et al. (1996) also called attention to large variations within a SES group, which have been presented in other studies as well (Aram & Levin, 2002; Payne et al., 1994; Purcell-Gates, L'Allier, & Smith, 1995; Rodriguez et al., 2009). Accordingly, these studies note that the influence of families' sociocultural characteristics on the home literacy environment and children's literacy development should be understood in light of the great variability within a sociocultural group.

Influence of Pre-kindergarten Experiences

The differences in young children's emergent literacy skills possibly resulting from home literacy environments may be moderated by participating in early intervention programs. In light of the importance of early literacy development, these education programs often provide children from low-income backgrounds with literacy-rich environments and purposeful literacy instruction so that young children may acquire and develop their emergent literacy skills. Research documents the positive impact of early intervention programs on young children's acquisition of language and literacy skills. Camilli, Vargas, Ryan, and Barnett (2010), in their meta-analysis, comprehensively analyzed 123 studies of early intervention programs and found that pre-kindergarten programs had significant impacts on young children's cognitive and social developmental outcomes.

More specifically, other studies examined the influence of early intervention programs on

young children's emergent literacy development. For example, Schwanenflugel et al. (in press) evaluated the effectiveness of a comprehensive emergent literacy program and demonstrated that participants in this intervention program increased a wide range of emergent literacy skills including vocabulary knowledge, phonological awareness, and alphabetical knowledge. Similarly, Diamond, Gerde, and Powell (2008), in their study of Head Start children's emergent literacy skills, placed particular emphasis on childrens' early writing competence and letter knowledge. They noted that the low-income children enrolled in this program significantly enhanced their abilities to write and name letters over the pre-kindergarten year. Their work further suggested the close association between emerent writing skills and alphabetical knowledge. These consistent findings regarding the positive effect of pre-kindergarten programs suggest that young children's exposure to literacy-rich environments outside the home may complement limited home literacy experiences of children from low-income backgrounds.

CHAPTER 3

Method

Participants

Data were collected on a sample of 218 children and their families who were enrolled in a public, state pre-kindergarten program in 2002-2003. These children were recruited from 18 publicly funded pre-kindergarten programs in three different school systems of a southeastern state. All children in this study came from homes in which English was the primary language. Children and families were grouped by their levels of home literacy as measured by two scales generated from a questionnaire assessing parent and child interactions around shared book reading. One scale measured parent-initiated activities in shared book reading while the second scale measured child-initiated activities. These scales were generated from an exploratory factor analysis of 35 items that were dichotomously rated as an activity in which either the child or parent engaged during shared book reading.

Of the 17 items that dealt with parent-initiated behaviors, items centered on tasks such as asking the child to point to a word, to tell what will happen next in the story, and to describe how the story relates to the child's experience. The factor analysis was conducted with NORHAM analysis program designed to analyze dichotomous data. Eight of the items from the questionnaire did not load on the scale, resulting in the nine-item scale solution. The internal consistency of these items with the sample of 218 children was .81.

Within the 35 items from the questionnaire, 18 items focused on child-initiated activities in shared book reading. Of those 18 items, 14 loaded on one factor that described child-initiated

tasks such as finding words with the same letters as the child's name, labeling pictures or objects in the story, asking questions of their parents about the story content. The same dichotomous data analysis procedure was used to isolate these 14 items. The internal consistency of the items on the child-initiated shared book reading scale for this sample was .86. The items for each of the two subscales along with their factor loadings can be found in Appendices A and B.

Data from these two subscales was used to develop a grouping variable that categorized children and family home literacy environment as high or low. A cut score of four or higher on the parent-initiated behaviors and a cut score of seven or higher on the child-initiated shared book reading behaviors was used to sort children and families into given home literacy environments. Of the 218, 114 children and families reporting scores lower than the cut scores on both the parent-initiated and child-initiated behaviors were coded as having a low home literacy environment. The remaining 104 having scores higher than the cut scores both on the parent-initiated and child-initiated behaviors were coded as high home literacy environments. For the low home literacy environments, the mean total score for the parent-initiated behaviors was 1.54 (SD = 1.01) and the mean total score for the child-initiated 3.55 (SD = 1.61). For high home literacy environments, the mean score for parent-initiated shared book reading behaviors was 6.08 (SD = 1.56) and for child-initiated behaviors was 10.37 (SD = 1.96). Almost all parents who responded to the questionnaire were the mothers of the children (91.7%). Fathers comprised 2.3% of the respondents, other adults such as grandparents comprised 2.8% of the respondents, and 3.2% of the respondents did not indicate their relationship to the child. Between the low and high literacy samples, no significant differences were found with regard to who responded to the questionnaire ($\chi^2(2) = .96$, $p = .62$).

On the child sample, parents indicated the child's ethnicity and gender. Data were

collected from school records on the child's enrollment in the free or reduced-price lunch program. Data were also collected on the highest level of education for the child's mother. Data for both groups of children from low and high literacy environments on these variables are found in Table 2. Eighteen families did not provide information on their ethnicity in the questionnaire responses. No significant differences were found on ethnicity ($\chi^2(3) = 4.52$, $p = .21$), gender ($\chi^2(1) = .00$, $p = .99$), or enrollment in the school lunch program ($\chi^2(1) = .10$, $p = .76$). A significant difference was found in the level of education of the child's mother ($\chi^2(1) = 7.61$, $p = .01$) where more mothers had obtained a college or graduate degree in the high home literacy group than in the low home literacy group. Educational levels of the mothers of the child participants varied from elementary school to graduate and professional levels. For the purpose of data analysis, maternal education level was collapsed into two groups. The first group was comprised of mothers with the highest degree awarded of a high school education. The second group included mothers who had completed some college coursework to those mothers who had graduate degrees.

Research Questions

To examine the influence of home literacy on emergent literacy outcomes at both the beginning of and end of the prekindergarten year, four research questions are investigated in this study. Research presented in the previous chapter suggests that difference in emergent literacy may be found among young children based on their home literacy experiences and the influence of their family economic status and the education level of their mothers. Therefore, the following research questions were explored in this study:

(1) What is the influence of home literacy on emergent literacy skills at both the beginning and the end of prekindergarten?

(2) What is the influence of home literacy on emergent literacy skills, when accounting for mother's education level at prekindergarten entry, at both the beginning and the end of prekindergarten?

(3) What is the influence of home literacy on emergent literacy skills, when accounting for initial emergent literacy skills at prekindergarten entry, at the end of prekindergarten?

(4) What is the influence of home literacy on emergent literacy skills, when accounting for initial emergent literacy skills and mother's education level at prekindergarten entry, at the end of prekindergarten?

A description of the analysis strategies used for the current study to address the above research questions follows the description of measures and data collection strategies.

Measures

Data were collected from children's parents at the beginning of the pre-kindergarten year. Families completed a home literacy questionnaire which is described above in the description of participants. Items for this home literacy questionnaire were generated from the existing empirical literature on home literacy and child and parent behaviors around literacy. Data were also collected from children on a number of emergent literacy measures that included the *Peabody Picture Vocabulary Test-3* (PPVT; Dunn & Dunn, 1997), the *Expressive Vocabulary Test* (EVT; Williams, 1997), and the *Phonological Awareness Test* (PAT; Robertson & Salter, 1997) from which an orthographic knowledge assessment was drawn.

The PPVT is a measure of receptive language normed for individuals from ages 2.5 through adulthood with internal consistencies that range from .80-.95. The test required no reading ability and has pictorial format of four pictures from which the child selects the picture of the word read by the examiner. The measure has a mean standard score of 100 (SD = 100).

The EVT is an individually-administered, norm-referenced assessment of expressive vocabulary and word retrieval for children and adults ages 2.5 to 90. The national standard score mean is 100 (*SD* = 15) with reported internal consistency among national norming groups in the .90s.

A subset of *The Phonological Awareness Test* (Robertson & Salter, 1997) subscales was used for this study. The scales targeted rhyme discrimination, syllable segmentation, initial phoneme isolation, and phoneme blending because these skills had been found to be statistically significant predictors of early reading ability in preschool children (Bryant et al., 1990; Goswami & Bryant, 1990). The norming population for the PAT test was five through nine year olds; however, the off-level use of this assessment for preschool children was validated by Webb, Schwanenflugel, and Kim (2004). Each subscale contained 10 items, scored dichotomously. Cronbach alpha internal reliability estimates at prekindergarten entry of .92 on rhyme discrimination, .87 on syllable segmentation, .98 on initial phoneme isolation, and .87 on phoneme blending.

From the PAT, orthographic knowledge was assessed by asking children to name upper- and lower-case letters and to produce the sound of letters. Specifically, the experimenter pointed to each letter sequentially and asked, "What's this letter?" If the children named the letter, they were asked, "What sound does it make?" If they made the sound first, they were asked, "What's the letter called?" Items were dichotomously scored for both name and sound knowledge. Cronbach alpha reliability, calculated using upper and lower case letter name and sound knowledge scores, was .81. For this study, two variables from the orthographic assessment are used and are *letter-naming total* and *letter-sounds total.* The letter naming score is calculated on the number of upper- and lower-case letters that a child can name with a maximum score of 52. The letters sound maximum score was also 52.

Data Collection

Data from the home literacy scale was collected in Fall 2002 as children began their pre-kindergarten year. Data on all other assessments were collected in the fall of the pre-kindergarten year to establish a baseline (Time 1) and then at the end of the pre-kindergarten year (Time 2) in the months of April and May 2003. Data were collected by trained assessors who underwent a rigorous training session for administration of the standardized instruments. Once data were collected, individual assessments were scored and entered into SPSS for subsequent analysis.

Data Analysis

Two major analyses were carried out to address the four research questions in the present study: a multivariate analysis of variance and an analysis of covariance. First, a one-way multivariate analysis of variance (MANOVA) was conducted to examine the influence of the home literacy environment on children's emergent literacy skills as measured both at the beginning and end of pre-kindergarten. The home literacy environment having two levels was used as a grouping variable as described in the participants section above. Children's test scores collected at the two different data points were used as response variables. MANOVA for each of the five emergent literacy measures was performed: PPVT, EVT, PAT, letter-naming total, and letter-sounds total.

In addition, a two-way MANOVA model including mother's educational level as another grouping variable was performed to take into account the effect of maternal education level on children's emergent literacy skills. This variable was included into the model based on the previous studies from the research literature and the descriptive finding in the current study that the level of mothers' education was significantly different in the two home literacy groups ($\chi^2(1) = 7.61$, $p = .01$). Family income level was not considered, however, because children enrolled in

the school free or reduced-price lunch program were homogeneously distributed among the low and high home literacy groups ($\chi^2(1) = .10$, $p = .76$). The assumptions of multivariate normality and covariance matrix equality were assessed as a preliminary step to MANOVA. When the assumption of equal covariance matrices was not met, we performed a Yao's test providing transformed *F* statistics for the two-group comparison (Huberty & Olejnik, 2006). In only one instance, letter-sounds total, was the Yao test used. In the two-way MANOVA, the effect of the interaction between home literacy and mother's education level was assessed first. When the interaction effect did not exist, the model was reassessed by dropping the interaction term.

The second major analysis in this study was an analysis of covariance (ANCOVA). A one-way ANCOVA was conducted to take into account initial differences in children's emergent literacy skills at pre-kindergarten entry. In addition to the home literacy environment as a grouping variable, a test score on each of the initial assessment of literacy skills was used as a covariate, and the data collected at Time 2 was used as a response variable. The analysis was performed respectively for each of the five literacy measures used in this study.

Additionally, as in the MANOVA analysis, we performed a two-way ANCOVA in order to consider the influence of mother's education level. That is, the purpose of this analysis was to determine the influence of home literacy on children's emergent literacy skills, when accounting for children's initial literacy skills at pre-kindergarten entry and their mothers' levels of education. In these ANCOVA analyses, the equality of regression slopes, which is one of the important ANCOVA assumptions, was tested first, and then the model was refitted depending on the result of the assumption checks.

CHAPTER 4

Results

The findings of this study will be presented according to the four research questions addressed in this study. For the purpose of describing two different data points, Time 1 and Time 2 were used to indicate the beginning and the end of the pre-kindergarten year respectively. Also, statistical hypotheses were tested at the $\alpha = .05$ level. Specific alpha levels are provided for the reader and are included in the accompanying tables. Prior to analysis and to provide some descriptive information about the specific behaviors in which children and parents engage, parents' responses on the parent-initiated and the child-initiated shared book reading behaviors scales were examined and are presented below.

Parent-Initiated Behaviors during Shared Book Reading

On the home literacy questionnaire, parents were asked to check all items describing behaviors that they commonly demonstrate during shared book reading. Sample percentage frequencies for all parents in the study are summarized below. Data from all parents are included in Table 3; however, only the most frequently and least frequently occurring parent-initiated behaviors are discussed here. In the total group (218 parents), the most frequent behavior practiced by parents during shared book reading was to *ask their children to point to the picture* (65.1%). Many parents responded that they engaged in *asking their children what happened in the story* (63.8%) or *talking about what the characters are doing or feeling* (60.1%). On the other hand, lower response rates were reported for the items placing emphasis on letters or words: *read a word incorrectly and wait for the child to correct you* (11.9%), *ask the child to point to a word*

(26.6%), and *ask the child to read a word* (30.3%). Frequencies were also computed and examined for the two home literacy groups (high literacy and low literacy used in subsequent analyses).

Child-Initiated Behaviors during Shared Book Reading

Parents also responded to items describing child-initiated behaviors during shared book reading. Sample percentage frequencies for all parents in the study are summarized below. Data from all parents are included in Table 4; however, only the most frequently and least frequently occurring child-initiated behaviors are discussed here. Overall, respondents reported that children most frequently engaged in *pointing to pictures* (82.6%) during shared book reading. This was consistent with the finding that parents most frequently asked their children to point to the picture. Other frequent child-initiated behaviors during reading included *pretending to read the book* (76.6%) and *asking questions or making comments about the story* (67.0%). However, children were least likely to *point to and read familiar words* (18.4%). A lower percentage of children participated in *relating the events and the characters in the story to their own life* (26.6%) or *trying to guess what will happen next* (31.7%).

Influence of Home Literacy on Emergent Literacy Skills both at Time 1 and Time 2

A one-way multivariate analysis of variance (MANOVA) was performed for each of the five literacy measures to examine the influence of home literacy on children's emergent literacy skills both at the beginning and end of the pre-kindergarten year. The assumption of multivariate normality was assessed using a within-class analysis and found to be met for four of the five responses variables: PPVT, EVT, PAT, and letter-naming total. The correlation coefficients for the squared Mahalanobias's distances (SMD's) and the chi-squared quantiles for these measures were greater than .95, suggesting that the data were multivariate normal. Although the normality

assumption did not hold for letter-sounds total, as indicated by the small correlation coefficients for the SMD's and the chi-squared quantiles (r_1 = .683, r_2 = .686), MANOVA hypothesis tests are robust to a violation of the multivariate normality assumption (Huberty & Olejnik, 2006). The equality of covariance matrices was assessed using Box's M test, and the assumption was tenable for all literacy measures.

The results of the one-way multivariate analysis of variance, as presented in Table 5, indicated that home literacy had a significant influence on receptive and expressive vocabulary measures, but not on PAT, letter-naming total, and letter-sounds total. In receptive vocabulary, the differences between the two groups were statistically significant, Λ = .956, $F(2, 189) = 4.33$, $p =$ .015. The multivariate η^2 was .044, suggesting that a small portion (4.4%) of the variation in the response variables was explained by the home literacy grouping variable. Because the multivariate test result was significant, we performed follow-up univariate analyses of variance (ANOVA). To control for Type I error across multiple tests, a Bonferroni adjustment was applied by using α = .025 level (Green & Salkind, 2005). The effect of the home literacy environment on receptive vocabulary was significant at Time 1, $F(1, 190) = 8.70$, p = .004, while it was not at Time 2, with the p-value near the borderline, $F(1, 190) = 5.05$, p = .026. Additionally, regarding children's expressive vocabulary scores measured at Time 1 and Time 2, the difference between the two home literacy groups was found to be significant, $\Lambda =$ .955, $F(2, 185) = 4.35$, p = .014, η^2_{Mult} = .045. Subsequent univariate analyses revealed that the effect of home literacy on expressive vocabulary was not detected at Time 1, $F(1, 186) = 1.87$, p = .174, but that it was found to be significant at Time 2, $F(1, 186) = 8.28$, p = .005. However, in terms of phonological awareness skills, letter-name knowledge, and letter-sounds knowledge measured at Time 1 and Time 2, children in the high home literacy group did not perform significantly better

than those in the low literacy group. Group centroids for these analyses can be found in Table 6.

Influence of Home Literacy on Emergent Literacy Skills both at Time 1 and Time 2, When Accounting for Mother's Educational Level

The purpose of conducting a two-way MANOVA was to include maternal educational level as another grouping variable, along with the home literacy environment. This model generating four different groups was tested for each of the five literacy measures. The results of these analyses are found in Table 7, with the group centroids provided in Table 8.The assumptions of multivariate normality and equal covariance matrices were assessed in the context of this model. Both normality and covariance matrix equality were found to be met for EVT, PAT, and letter-naming total. In the case of PPVT, the data were multivariate normal, but the result of the Box test indicated unequal covariance matrices, $X^2_{(9)} = 17.853$, $p = .037$. Considering that this test is extremely powerful and that the reported p-value was close to the borderline, the natural logs of the covariance matrix determinants were visually inspected and judged to be equal (Huberty & Olejnik, 2006). In letter-sounds total, however, the *p*-value associated with the Box test was extremely small, $X^2_{(9)} = 75.272$, $p < .0001$, so we could not perform the usual MANOVA tests. Instead, the Yao test providing an appropriate transformation was used for separate group contrasts. Data for letter-sounds total were not normally distributed, but the reported *p*-value is little affected by a non-normal distribution.

In this two-way MANOVA model, the four emergent literacy measures at Time 1 and Time 2, excepting for letter-sounds total, were assessed. Because the interaction effects between home literacy and maternal educational level were not significant for all four literacy measures, the model was refitted by dropping the interaction term in every case. According to the results, none of the main effects of home literacy and maternal educational level was significant for receptive

vocabulary, phonological awareness, and letter-name knowledge measured at the two data points. In particular, the effect of home literacy on receptive vocabulary that was significant in the one-way MANOVA was not found when we took into account the effect of maternal educational level together, $\Lambda = .973$, $F(2, 172) = 2.38$, $p = .096$, $\eta^2_{\text{Mult}} = .027$, suggesting the possibility of an interdependency between the home literacy environment and maternal educational level.

The similar pattern was found for the expressive vocabulary measure as well. That is, the influence of home literacy on expressive vocabulary scores had become non-significant, after accounting for the effect of maternal educational level, $\Lambda = .971$, $F(2, 169) = 2.56$, $p = .081$, $\eta^2_{\text{Mult}} = .029$. However, the main effect of maternal educational level on expressive vocabulary was significant, $\Lambda = .953$, $F(2, 169) = 4.15$, $p = .017$, $\eta^2_{\text{Mult}} = .047$. Subsequent univariate analyses tested at the $\alpha = .025$ level indicated that children who had mothers with higher levels of education demonstrated significantly higher expressive vocabulary test scores than those with less educated mothers at both the beginning of pre-kindergarten, $F(1, 170) = 5.83$, $p = .017$, and the end of the pre-kindergarten year, $F(1, 170) = 7.52$, $p = .007$.

Lastly, the Yao test was performed to examine the effects of home literacy and maternal educational level on letter-sounds knowledge assessed at Time 1 and Time 2. All possible pairwise comparisons of the four groups were made. When a Bonferroni adjustment was applied by using $\alpha = .01$ level, there were no significant differences between two groups, among the six possible comparisons.

Influence of Home Literacy on Emergent Literacy Skills at Time 2, When Accounting for Initial Emergent Literacy Skills at Time 1

In a one-way ANCOVA, children's emergent literacy outcomes at the beginning of pre-

kindergarten were used as a covariate to take into account their initial differences. A preliminary analysis testing the equality of regression slopes indicated the assumption was met for all five literacy measures. When accounting for children's initial performances, the influence of the home literacy environment on children's emergent literacy skills at the end of pre-kindergarten was found to be significant in expressive vocabulary, $F(1, 185) = 6.78$, $p = .01$, partial $\eta^2 = .035$. Children in the high home literacy environment had a larger adjusted mean ($M = 101.33$) than those in the low home literacy group ($M = 97.15$). In addition, the effect of the home literacy environment on children's letter-sounds knowledge was significant, although the *p*-value was near the borderline, $F(1, 185) = 3.95$, $p = .049$, partial $\eta^2 = .021$. The adjusted mean score for the high home literacy group ($M = 12.45$) was greater than the mean score for the low literacy group ($M = 8.85$). However, significant differences in the adjusted means between the two home literacy groups were not found for the other emergent literacy variables: PPVT, PAT, and letter-naming total. The results of the one-way ANCOVA are provided in Table 9.

Influence of Home Literacy on Emergent Literacy Skills at Time 2, When Accounting for Initial Emergent Literacy Skills and Mother's Educational Level at Time 1

A two-way ANCOVA was conducted to examine the influence of home literacy on emergent literacy skills at the end of pre-kindergarten by considering children's initial performances and the possible influence of maternal educational level. After testing the assumption of equal regression slopes, the possibility of an interaction between the two grouping variables was assessed as well. The results of these preliminary analyses allowed us to refit the model and look at the main effects of home literacy and maternal educational level. As can be seen in Table 10, after accounting for the influence of mother's educational level and the covariate, the main effect of the home literacy environment on emergent literacy skills was

significant only in the area of expressive vocabulary, $F(1, 169) = 4.73$, $p = .03$, partial $\eta^2 = .027$. The adjusted mean scores were 101.88 and 98.15 respectively for the high and low home literacy group. No significant differences were found between the two groups of different mothers' educational levels in all five literacy measures, when influences of home literacy and children's initial differences were considered together. These non-significant main effects might have been affected by the interdependency between home literacy and mother's educational level or might be explained by low levels of parent-child interaction in their homes around letter-naming, letter sounds, and phonological skills. The influences of home literacy or maternal educational level on emergent literacy skills in general were not significant when accounting for children's initial differences. However, as can be seen in Table 6 and Table 8, their test scores on the literacy measures, especially on PAT, letter-naming total, and letter-sounds total, improved noticeably throughout the pre-kindergarten year, which might have been a result of their literacy experiences in pre-kindergarten.

In summary, the patterns of parent-child interactions during shared book reading were examined prior to analysis. Parent-child interactions during storybook reading often centered on the pictures of books and explicit meanings of the story, but they placed less emphasis on printed letters or words. The four separate analyses were conducted to answer the research questions raised in this study. When using child literacy outcomes at Time 1 and Time 2 as multiple response variables, the influences of home literacy on receptive and expressive vocabulary were significant, suggesting that the home literacy environment contributed to children's acquisition of oral language skills. However, these significant effects were not found when mother's educational level was additionally taken into account. Instead, there was a significant difference between the high and low levels of education groups in expressive vocabulary. Considering that

mother's educational level influenced the effect of home literacy on emergent literacy skills and that there was a significant main effect of maternal educational level on expressive vocabulary, mother's educational level was also an influencing factor on children's emergent literacy skills. Additionally, when children's initial emergent literacy skills were used as a covariate, the influence of home literacy on children's literacy skills at the end of pre-kindergarten was significant only in the area of expressive vocabulary and letter-sounds knowledge. The significant effect of home literacy on expressive vocabulary remained, after taking into account the effect of maternal education level. The finding that main effects of home literacy and maternal educational level on phonological awareness skills and alphabetical knowledge were not generally significant might suggest that another factor, children's pre-kindergarten experiences, could have contributed to their acquisition of these emergent literacy skills.

CHAPTER 5

Discussion

The purpose of this study was to examine the influence of the home literacy environment on pre-kindergarten children's development of emergent literacy skills. The results from this study suggest that home literacy, as measured by parent-child interactions during shared book reading, significantly influenced young children's acquisition of receptive and expressive vocabulary skills. The finding that the effect of home literacy primarily centered on oral language skills but not on written language skills may be related to parents' and children's focus on pictures and contents of the story rather than printed letters during shared book reading. This pattern of parent-child book reading practices indicated that parents' explicit teaching activities were not frequently embedded in shared book reading. The findings of this study also suggested the possible influences of mother's educational level and pre-kindergarten intervention on children's acquisition of emergent literacy skills.

Influence of the Home Literacy Environment on Children's Emergent Literacy Skills

The use of diverse measures of emergent literacy skills in this study allowed us to examine unique influences of home literacy on these different domains of emergent literacy. The home literacy environment measured in this study had primary influences on young children's acquisition of receptive and expressive vocabulary. In particular, the influence of home literacy on expressive vocabulary was significant even after controlling for the effects of maternal educational level and children's initial differences in their expressive vocabulary skills. These findings were generally consistent with those of previous studies indicating that shared book

reading influenced children's oral-language skills, while parental teaching activities improved children's written-language skills (Hood et al., 2008; Senechal et al., 1998).

The patterns of parent-child book reading interactions found in this study may provide a reasonable explanation for the unique influence of shared book reading on oral literacy skills. Parents and children participating in this study were more likely to focus on pictures or contents of the story during shared book reading with less emphasis on printed letters or words. Although the parents and children in the high literacy group engaged significantly more frequently in a wide variety of parent-initiated or child-initiated interactive behaviors during reading than those in the low literacy group, the extent to which emphasis was placed on content-oriented interactions compared to print-oriented interactions was similar in both groups of the high and low home literacy environment: higher levels of engagement in content-oriented interactions and lower levels of engagement in print-oriented interactions.

These self-reported patterns of parent-child reading interactions are in line with previous findings indicating that parents are more likely to employ meaning-related talk than to focus on printed elements of the text (Sonnenschein & Munsterman, 2002). Evans et al. (2008) examined the amount of time preschool children looked at print during shared book reading and found that children paid much more attention to illustrations than to print. The Baker et al. (2001) study also revealed that parents most commonly talked with their children about the book's illustrations during shared book reading. Similarly, the most frequent parent-child book reading behavior found in this study involved interactions surrounding pictures in the book such as asking the child to point to a picture.

These findings regarding the quality of shared book reading interactions may relate to the close link between shared book reading and oral language skills. In this study, however, the

influence of parent-child book reading interactions on children's letter-sounds knowledge was significant, although its effect was not large. This result's inconsistency with the research literature may suggest the possibility that parents may be able to facilitate their children's acquisition of letter knowledge by employing different reading strategies during shared book reading. For example, parent-initiated behaviors that encouraged their children to point to or read a word may have contributed to children's acquisition of letter knowledge, although only approximately one-fourth of the parents in this study demonstrated these types of parental reading behaviors.

Indeed, previous studies support the notion that the quality of parent-child interactions plays crucial roles in determining the influence of home literacy on children's emergent literacy skills. In other words, the effect of shared book reading on emergent literacy skills might not be generalizable to all parents and children engaging in book reading, but rather it may be dependent on the characteristics and quality of parent-child interactions during reading. For example, Evans et al. (2008) found that parental practices of pointing to words during reading significantly increased preschoolers' attention to print and their ability to recall the print targets. Parents employing this reading style may be more likely than those who do not to anticipate their children's acquisition of print knowledge during shared book reading.

Additionally, parents' lesser emphasis on printed letters during shared book reading suggests that parental explicit teaching of letters or words is not commonly practiced as a part of shared book reading interactions. This is consistent with the previous findings that shared book reading and parental teaching may not occur simultaneously in many homes (Hood et al., 2008; LeFevre & Senechal, 2002). However, some of the parent participants in the current study did engage in teaching words to children during shared book reading, although there were not many.

This finding highlights that, as Stephenson et al. (2008) contended, parental teaching practices and storybook reading are not totally independent of each other. Parental teaching of letters or words may be successfully embedded in shared book reading if parents use effective reading or teaching strategies. Considering that storybook reading is likely to enhance children's motivation for reading (Sonnenschein & Munsterman, 2002), young children may even benefit from being exposed to letters or words during shared book reading in that they may acquire knowledge about print and letters in a more natural and emotionally positive setting.

Influence of Mother's Educational Level on Emergent Literacy Skills

The current study supports previous research findings indicating that family socioeconomic characteristics influence children's development of emergent literacy (Aikens & Barbarin, 2008; Bowey, 1995; Korat et al, 2007). In particular, this study provided important findings regarding the impact of mother's educational level on children's acquisition of emergent literacy skills. When home literacy and maternal educational level were considered together to explain children's differences in their expressive vocabulary skills both at the beginning and the end of the pre-kindergarten year, the differences in mother's educational level explained the differences in children's expressive vocabulary skills. This finding should be discussed together with a consideration of the prominent influence of home literacy on expressive vocabulary. Indeed, the findings of this study indicated that maternal educational level affected the relationship between home literacy and children's emergent literacy skills, suggesting that the home literacy environment and maternal educational level that are interdependent with each other as they influence young children's development of emergent literacy. Regarding the relationships among these three factors, previous findings suggest that the home literacy environment may mediate the association between SES and children's emergent literacy skills

(Aikens & Barbarin, 2008; Son & Strasser, 2002).

The powerful influences of home literacy and maternal educational level on young children's expressive vocabulary may be a result of the differences in their everyday language experiences in the home. Compared to receptive vocabulary, expressive vocabulary requires more detailed information about vocabulary items (Crow, 1986). Given the high level of knowledge required in order for children to produce a word, expressive vocabulary skills may be more likely to be influenced by children's experiences accumulated in the home over a relatively long period of time. This proposition may be supported by the current study's result that children's mean score changes for expressive vocabulary were significantly small, compared to the other literacy outcome measures. In particular, the children in the low home literacy group hardly improved their expressive vocabulary scores.

Hart and Risley (1995), in their work examining 42 American families comprising of upper, middle, and lower SES families, found major differences among different SES groups in terms of parenting styles, families' language styles, and quality of interactions. For example, compared to the working-class parents, the professional parents not only talked more to their children but their utterances were also richer. They used more varieties of words or sentence structures such as nouns, modifiers, past-tense verbs, auxiliary-fronted yes/no questions, declarative sentences, and affirmative feedback. Hart and Risley (1995) noted that these differences in young children's everyday experiences may have cumulative effects on their language and literacy development. In light of these findings, young children who consistently and regularly interact with their mothers using rich vocabulary and complex sentence structures in the home may be more likely to produce more words.

Influence of Pre-kindergarten Experiences on Emergent Literacy Skills

Another important finding that emerged from this study was the influence of pre-kindergarten experiences on children's acquisition of emergent literacy skills. The current study examined the impact of the home literacy environment on children's early literacy development over the pre-kindergarten year. Although we did not directly investigate the effectiveness of early intervention programs, this particular research context provided the opportunity to consider the influence of pre-kindergarten intervention programs on young children's language and literacy development.

The findings of the current study suggest that pre-kindergarten programs support young children in developing emergent literacy skills, bridging the gaps among children's literacy skills that may result from their different home literacy environments. Children's growths in their emergent literacy outcomes during the course of the pre-kindergarten year were noticeable, with particularly significant improvements in their alphabetical knowledge and phonological awareness. However, when accounting for the initial differences in children's emergent literacy skills at pre-kindergarten entry, the home literacy environment was found to only influence children's expressive vocabulary and letter-sounds knowledge at the end of pre-kindergarten. The effect size for letter-sounds knowledge was even very small. The gains in children's emergent literacy skills unexplained by the home literacy environment might then be attributable to their literacy learning experiences in pre-kindergartens. It may be that explicit instruction in pre-kindergarten focusing on written-language skills such as print concepts or alphabet knowledge may have complemented what was dismissed by parents in many homes. Indeed, previous research provided evidence for the positive effects of early educational interventions on children's early literacy development (Camilli et al., 2010; Landry, Swank, Smith, Assel, & Gunnewig, 2010; Mohler, Yun, Carter, & Kasak, 2009).

Limitations of the Current Study

It is important to note a number of limitations in this study. First, the current study is based on the parents' self-reports of their home literacy practices. Given that frequent and high-quality home literacy activities are considered socially valued and desirable (Bingham, 2007; Deckner et al., 2006), parents' responses might have been biased toward overestimating their engagements in children's literacy learning. Future research may be able to deal with this issue of social desirability by using multiple methods of data collection such as survey and observation of actual home literacy practices (Curenton & Justice, 2008). Research on the quality of the home literacy practices in the home may, in particular, benefit from a qualitative investigation of the home literacy environment. Another alternative approach to the concerns about the reliability of parents' self-reports was suggested by Senechal et al. (1996) who developed storybook exposure checklists including titles and authors of children's books. They looked at parents' familiarity with children's books using these checklists in order to measure children's book exposure in the home.

Another limitation of this study is that although the current study explored both shared book reading and parental teaching practices during book reading, there were still other aspects of the home literacy environment not examined here. For example, the availability of literacy resources in the home, parents' engagement in their own literacy activities, or parents' beliefs about literacy are some other home literacy components that may influence children's early literacy development. Although it might be difficult to take into account all these factors in one study because of the inclusiveness of the home literacy environment, future studies based on a more comprehensive approach to home literacy may be able to provide additional findings regarding its influences on young children's language and literacy development.

Lastly, it is important to highlight the methodology employed in this study. Given that definite evidence for causal inferences can only be obtained from true experimental designs (Thompson, Diamond, McWilliam, Snyder, & Snyder, 2005), the findings of the current study should be interpreted with caution, especially when speaking about the causal relationships. The causal-comparative design used, allows for examination of outcomes for two groups of children based on their home literacy environments (i.e., low and high). While children were not randomly assigned to home literacy conditions, there are still important implications through a quasi-experimental approach to examine child outcomes related to literacy through prekindergarten.

Implications of the Current Study

The current study provides several implications for researchers and educational practitioners. First, this study highlights the importance of examining the quality of home literacy practices. There are variations in the way parents interact with their children during home literacy practices. These differences in the quality of home literacy practices may affect the extent to which home literacy influences children's emergent literacy skills (Curenton & Justice, 2008). Research on the quality of home literacy practices may reveal different types of parent-child interaction that effectively support children's early literacy development.

Second, future research should further examine parental teaching activities in the home. Parents' involvement in explicit teaching of literacy may enhance positive effects of the home literacy environment on children's emergent literacy skills (Aram & Levin, 2002); however, parental teaching activities are not as commonly practiced as shared book reading. Research examining different types and effects of parental teaching practices may encourage parents to engage more in teaching letters or words to their children. In particular, developing strategies for

embedding parental teaching in shared book reading may be meaningful for the parents who are already reading together with their children.

Lastly, based upon ongoing research on the home literacy environment, there is a need for developing early intervention programs for the parents and children from poor home literacy environments (Burgess et al., 2002). For the parents, providing them with information about young children's literacy development or effective strategies for engaging in their children's literacy learning will be beneficial (Bennett et al., 2002). For the children from home literacy environments that are not optimal, intervention programs should provide supports particularly lacking in their home environments so that we can narrow the gap between these children's emergent literacy skills and those of other children from supportive home literacy environments.

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Table 1
Operationalization of Key Terms

Terms	Operationalization
Home literacy environment	The home literacy environment includes a variety of literacy-related resources and activities practiced in the home that support children's literacy development. For the purpose of the current study, parent-child interactions during shared book reading were examined as an important aspect of the home literacy environment.
Emergent literacy	Emergent literacy is an inclusive and developmentally grounded perspective on literacy that encompasses a variety of precursors to conventional forms of reading and writing. Emergent literacy skills include receptive/expressive vocabulary, letter knowledge, and phonological awareness.
Socioeconomic status (SES)	Socioeconomic status is often measured by family income, parental educational level, and parental occupational status. In particular, mother's educational level was considered as one of the components reflecting family socioeconomic characteristics.

Table 2
Demographic Characteristics of the Child Sample

Characteristic	Low Literacy		High Literacy	
Ethnicity*	F	%	f	%
African American	62	57.9	50	53.8
Asian	1	0.9	0	0
Multiracial	0	0	3	3.2
White	44	41.1	40	43.0
Gender				
Male	54	50.5	48	50.5
Female	53	49.5	47	49.5
Enrollment-Food Program				
Enrolled	62	53.9	53	46.1
Not Enrolled	45	51.7	42	48.3
Mother Highest Education				
Less than college	73	57.0	55	43.0
College completion +	26	36.6	45	63.4

Note. Some missing data. Because of rounding, not all percentages total to 100.

Table 3
Parent-Initiated Behaviors during Shared Book Reading

Parent-Initiated Behaviors	Respondent Group (%)		
	Total Group (n = 218)	High Home Literacy (n = 104)	Low Home Literacy (n = 114)
1. Ask your child to point to the pictures	65.1	93.3	39.5
2. Ask your child what happened in the story	63.8	93.3	36.8
3. Talk about what the characters are doing or feeling	60.1	90.4	32.5
4. Relate the story to your own child's life	41.7	73.1	13.2
5. Ask your child to explain why something happened	38.2	71.2	8.0
6. Ask your child what will happen next in the story	32.6	61.5	6.1
7. Ask your child to read a word	30.3	52.9	9.6
8. Ask your child to point to a word	26.6	49.0	6.1
9. Read a word incorrectly and wait for your child to correct you	11.9	23.1	1.8

Note. Frequencies of the listed parent-initiated behaviors in the high and low home literacy groups were significantly different at the $\alpha = .05$ level.

Table 4
Child-Initiated Behaviors during Shared Book Reading

Child-Initiated Behaviors	Respondent Group (%)		
	Total Group (n = 218)	High Home Literacy (n = 104)	Low Home Literacy (n = 114)
1. Points to pictures	82.6	98.1	68.4
2. Pretends to read the book	76.6	90.4	64.0
3. Asks you questions or makes comments about the story during reading	67.0	94.2	42.1
4. Turns pages	59.2	81.7	38.6
5. Asks you "What does this say?"	56.9	85.6	30.7
6. Answers your questions during or after reading	53.2	87.5	21.9
7. Says "the end" when the story is finished	51.8	86.5	20.2
8. Labels pictures of objects and people	47.0	59.6	19.3
9. Finds words with the same letters as his or her own name	42.7	67.3	20.2
10. Retells the story while turning pages	33.9	66.3	4.4
11. Labels the actions in pictures	33.0	59.6	8.8
12. Tries to guess what will happen next	31.7	60.6	5.3
13. Relates the events and the characters in the story to his/her own life	26.6	49.0	6.1
14. Points to and reads familiar words	18.3	32.7	5.3

Note. Frequencies of the listed child-initiated behaviors in the high and low home literacy groups were significantly different at the $\alpha = .05$ level.

Table 5
Results of MANOVA of Children's Emergent Literacy Outcomes by Home Literacy

Variable	Source	Wilks' Λ	*Df*	*F*	*P*	η^2_{Mult} [a]
PPVT	Home	.956	(2, 189)	4.33*	.015	.044
PPVT Time1						
PPVT Time 2						
EVT	Home	.955	(2, 185)	4.35*	.014	.045
EVT Time 1						
EVT Time 2						
PAT	Home	.995	(2, 188)	.46	.629	.005
PAT Time 1						
PAT Time 2						
Letter-naming total	Home	.974	(2, 185)	2.45	.089	.026
LN Time 1						
LN Time 2						
Letter-sounds total	Home	.979	(2, 185)	2.00	.139	.021
LS Time 1						
LS Time 2						

Note. PPVT = *Peabody Picture Vocabulary Test-3*; EVT = *Expressive Vocabulary Test*; PAT = *Phonological Awareness Test;* LN = *Letter-naming total;* LS = *Letter-sounds total;* Home = home literacy environment; Time 1 = at the beginning of the pre-kindergarten year; Time 2 = at the end of the pre-kindergarten year.
[a] Guidelines for interpreting effect size using eta suggest that .01 is a small effect size, .06 a medium effect size, and .15 a large effect size.
*$p < .05$.

Table 6
Group Centroids for the One-Way MANOVA

Variable	High Home Literacy Environment	Low Home Literacy Environment
PPVT		
PPVT Time1	93.77	86.80
PPVT Time 2	97.14	92.01
EVT		
EVT Time 1	97.74	95.34
EVT Time 2	102.29	96.23
PAT		
PAT Time 1	7.64	6.98
PAT Time 2	13.89	12.35
Letter-naming		
Letter-naming Time 1	11.99	7.80
Letter-naming Time 2	28.48	24.22
Letter-sounds		
Letter-sounds Time 1	1.53	1.35
Letter-sounds Time 2	12.55	8.75

Note. PPVT = *Peabody Picture Vocabulary Test-3*; EVT = *Expressive Vocabulary Test*; PAT = *Phonological Awareness Test;* Letter-naming = *Letter-naming total;* Letter-sounds = *Letter-sounds total;* Time 1 = at the beginning of the pre-kindergarten year; Time 2 = at the end of the pre-kindergarten year.

Table 7
Results of MANOVA of Children's Emergent Literacy Outcomes by Home Literacy and Mother's Educational Level

Variable	Source	Wilks' Λ	*Df*	*F*	*P*	η^2_{Mult} [a]
PPVT	Home	.973	(2, 172)	2.38	.096	.027
	Education	.975	(2, 172)	2.20	.114	.025
PPVT Time1						
PPVT Time 2						
EVT	Home	.971	(2, 169)	2.56	.081	.029
	Education	.953	(2, 169)	4.15*	.017	.047
EVT Time 1						
EVT Time 2						
PAT	Home	.999	(2, 171)	.09	.916	.001
	Education	.973	(2, 171)	2.34	.10	.027
PAT Time 1						
PAT Time 2						
Letter-naming	Home	.984	(2, 169)	1.39	.252	.016
	Education	.968	(2, 169)	2.76	.066	.032
LN Time 1						
LN Time 2						

Note. PPVT = *Peabody Picture Vocabulary Test-3*; EVT = *Expressive Vocabulary Test*; PAT = *Phonological Awareness Test;* LN = *Letter-naming total;* Home = home literacy environment; Education = mother's level of education; Time 1 = at the beginning of the pre-kindergarten year; Time 2 = at the end of the pre-kindergarten year.
[a] Guidelines for interpreting effect size using eta suggest that .01 is a small effect size, .06 a medium effect size, and .15 a large effect size.
*$p < .05$.

Table 8
Group Centroids for the Two-Way MANOVA

Home Literacy	Maternal Education	Variable		Mean
Low	Low	PPVT	T1	85.36
			T2	90.70
	High		T1	93.96
			T2	101.04
High	Low	PPVT	T1	92.98
			T2	96.38
	High		T1	96.05
			T2	98.19
Low	Low	EVT	T1	94.19
			T2	93.43
	High		T1	101.08
			T2	105.23
High	Low	EVT	T1	96.48
			T2	100.96
	High		T1	101.16
			T2	104.32
Low	Low	PAT	T1	6.36
			T2	11.06
	High		T1	8.96
			T2	16.39
High	Low	PAT	T1	7.08
			T2	12.60
	High		T1	8.66
			T2	15.43
Low	Low	Letter-naming	T1	6.05
			T2	22.72
	High		T1	12.09
			T2	32.70
High	Low	Letter-naming	T1	10.55
			T2	27.63
	High		T1	14.71
			T2	29.31
Low	Low	Letter-sounds	T1	0.42
			T2	7.99
	High		T1	2.09
			T2	13.09
High	Low	Letter-sounds	T1	1.28
			T2	10.92
	High		T1	1.82
			T2	15.56

Note. PPVT = *Peabody Picture Vocabulary Test-3*; EVT = *Expressive Vocabulary Test*; PAT = *Phonological Awareness Test;* Letter-naming = *Letter-naming total;* T1 = Time 1 (at the beginning of the pre-kindergarten year); T2 = Time 2 (at the end of the pre-kindergarten year).
*$p < .05$.

Table 9
Results of the One-Way ANCOVA

Variable	Source	Sum of Squares	*Df*	Mean Square	*F*	partial η^{2a}
PPVT T2	PPVT T1	28189.60	1	28189.60	277.02***	.594
	Home	.17	1	.17	.00	.000
	Error	19232.55	189	101.76		
EVT T2	EVT T1	16561.54	1	16561.54	137.81***	.427
	Home	814.32	1	814.32	6.78*	.035
	Error	2232.50	185	120.18		
PAT T2	PAT T1	6363.74	1	6363.74	71.49***	.275
	Home	51.08	1	51.08	.57	.003
	Error	16735.80	188	89.02		
LN T2	LN T1	18347.02	1	18347.02	113.25***	.380
	Home	63.35	1	63.35	.39	.002
	Error	29970.34	185	162.00		
LS T2	LS T1	8071.00	1	8071.00	52.43***	.221
	Home	607.38	1	607.37	3.95*	.021
	Error	28479.72	185	153.94		

Note. PPVT = *Peabody Picture Vocabulary Test-3*; EVT = *Expressive Vocabulary Test*; PAT = *Phonological Awareness Test;* LN = *Letter-naming total;* LS= *Letter-sounds total;* Home = home literacy environment; T1 = Time 1 (at the beginning of the pre-kindergarten year); T2= Time 2 (at the end of the pre-kindergarten year).
[a] Guidelines for interpreting effect size using eta suggest that .01 is a small effect size, .06 a medium effect size, and .15 a large effect size.
*$p < .05$. ** $p < .01$.*** $p < .0001$.

Table 10
Results of the Two-way ANCOVA

Variable	Source	Sum of Squares	*Df*	Mean Square	*F*	partial η^{2} [a]
PPVT T2	PPVT T1	24522.21	1	24522.21	254.96***	.597
	Home	19.76	1	19.76	.21	.001
	Education	69.00	1	69.00	.72	.004
	Error	16543.27	172	96.18		
EVT T2	EVT T1	13010.98	1	13010.98	105.77***	.385
	Home	581.24	1	581.24	4.73*	.027
	Education	297.33	1	297.33	2.42	.014
	Error	20788.83	169	123.01		
PAT T2	PAT T1	5051.41	1	5051.41	54.47***	.242
	Home	12.94	1	12.94	.14	.001
	Education	202.85	1	202.85	2.19	.013
	Error	15858.60	171	92.74		
LN T2	LN T1	15128.41	1	15128.41	93.36***	.356
	Home	.07	1	.07	.00	.000
	Education	62.61	1	62.61	.39	.002
	Error	27386.39	169	162.05		
LS T2	LS T1	6112.46	1	6112.46	38.30***	.185
	Home	295.10	1	295.10	1.85	.011
	Education	356.91	1	356.91	2.24	.013
	Error	26971.59	169	159.60		

Note. PPVT = *Peabody Picture Vocabulary Test-3*; EVT = *Expressive Vocabulary Test*; PAT = *Phonological Awareness Test;* LN = *Letter-naming total;* LS= *Letter-sounds total;* Home = home literacy environment; Education = mother's educational level; T1 = Time 1 (at the beginning of the pre-kindergarten year); T2= Time 2 (at the end of the pre-kindergarten year).
[a] Guidelines for interpreting effect size using eta suggest that .01 is a small effect size, .06 a medium effect size, and .15 a large effect size.
*$p < .05$. ** $p < .01$.*** $p < .0001$.

APPENDIX A

Items on Parent-Initiated Behaviors during Shared Book Reading and Their Varimax Rotated Factor Loadings

When you or someone else at home reads a book with your child, what do you usually do?	1	2
1. Ask your child to point to the pictures (e.g. "Where is the _?")	.126	**.576**
2. Ask your child to point to a word (e.g. "Can you find the word zoo?")	-.010	**.520**
3. Ask your child to read a word (e.g. "What does this say?")	.013	**.656**
4. Read a word incorrectly and wait for your child to correct you	-.115	**.401**
5. Ask your child what happened in the story	-.049	**.665**
6. Ask your child what will happen next in the story	-.109	**.746**
7. Ask your child to explain why something happened	-.001	**.788**
8. Talk about what the characters are doing or feeling	-.066	**.676**
9. Relate the story to your own child's life	.179	**.502**

Note. Factor loadings > .40 are in boldface.

APPENDIX B

Items on Child-Initiated Behaviors during Shared Book Reading and Their Varimax Rotated Factor Loadings

How does your child participate during shared reading activities at home?	1	2
1. Turns pages	.031	**.473**
2. Finds words with the same letters as his or her own name	-.146	**.583**
3. Says "the end" when the story is finished	.065	**.521**
4. Pretends to read the book	-.065	**.693**
5. Points to pictures	-.175	**.544**
6. Labels pictures of objects and people	-.018	**.543**
7. Tries to guess what will happen next	-.119	**.715**
8. Relates the events and the characters in the story to his/her own life	-.031	**.445**
9. Answers your questions during or after reading	-.160	**.567**
10. Labels the actions in pictures	-.055	**.683**
11. Asks you "What does this say?"	-.013	**.694**
12. Asks you questions or makes comments about the story during reading	-.207	**.646**
13. Retells the story while turning pages	.030	**.728**
14. Points to and reads familiar words	-.032	**.740**

Note. Factor loadings > .40 are in boldface.