

THE RELATIONSHIP BETWEEN THE HOME LITERACY  
ENVIRONMENT, FAMILY BACKGROUND, PARENT-CHILD  
ATTACHMENT, AND PARENT BEHAVIORS ON  
CHILDREN'S EARLY READING SKILLS

BY

LENA MARIE FANTUZZI-CHAPMAN

A DISSERTATION  
SUBMITTED TO THE FACULTY OF

ALFRED UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF

DOCTOR OF PSYCHOLOGY

IN

SCHOOL PSYCHOLOGY

ALFRED, NEW YORK

September, 2012

THE RELATIONSHIP BETWEEN THE HOME LITERACY  
ENVIRONMENT, FAMILY BACKGROUND, PARENT-CHILD  
ATTACHMENT, AND PARENT BEHAVIORS ON  
CHILDREN'S EARLY READING SKILLS

BY

LENA MARIE FANTUZZI-CHAPMAN

DOUGLASS COLLEGE, RUTGERS UNIVERSITY, B.A. (2000)

ALFRED UNIVERSITY, M.A. (2004)

APPROVED BY: \_\_\_\_\_ Nancy Evangelista, Ph.D.  
Committee Chairperson

\_\_\_\_\_ Ellen Faherty, Psy.D.  
Committee Member

\_\_\_\_\_ Arthur Greil, Ph.D.  
Committee Member

\_\_\_\_\_ Lynn O'Connell, Psy.D.  
Committee Member

ACCEPTED BY: \_\_\_\_\_ Lynn O'Connell, Psy.D.  
Chairperson, Division of School Psychology

ACCEPTED BY: \_\_\_\_\_ Nancy Evangelista, Ph.D.  
Associate Provost and Director of Graduate Studies

ACCEPTED BY: \_\_\_\_\_ William Hall, Ph.D.  
Provost & Vice President for Academic Affairs



## Acknowledgements

Completion of my dissertation has been an incredibly long process with some bumps along the road. The process has proved to be both challenging and rewarding. The individuals on my dissertation committee provided me with the academic support to complete my endeavor. I would like to thank my advisor and dissertation chair, Dr. Nancy Evangelista, for her continued expertise, support, encouragement, and guidance throughout my journey. I appreciate the time she dedicated to my dissertation. Also, I thank Dr. Larry Greil for his expertise in statistics and devoting many hours of his time assisting me in the data analysis. Additionally, I appreciate all the support that Dr. Ellen Faherty and Dr. Lynn O'Connell provided in revising my drafts. Also, Dr. Ellen Faherty's expertise in early childhood development and Dr. Lynn O'Connell understanding of early literacy skills and literacy measurement were integral in the completion of my study. I also thank Dr. Ed Gaughan for his time and assistance with the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) database. I would also like to thank all the professors at Alfred University for providing me with the opportunity to challenge myself academically and for paving the way for my success as a school psychologist.

I am also thankful for my roommate at Alfred University and friend, Dr. Cara Smith, for her encouragement, guidance, and support during our time at Alfred University and throughout the dissertation process. In addition, my colleagues at the Sussex-Wantage Regional School District, especially Kellee Yakupcin and Christine Flynn, have provided me with support and encouragement throughout the process. The

Director of Special Services and my supervisor, Nanci Valente, has encouraged me to obtain a healthy balance between professional, educational, and family responsibilities.

I am very grateful for all the support and love my family has provided throughout my education. My parents, Linda and Ray Fantuzzi, taught me the importance of education and completing the task at hand. They believed in me throughout the dissertation journey. Also, my sisters, Dr. Kristen Fantuzzi and Rebecca Fantuzzi-Hallam, have supported and listened to me as I navigated through the steps in the dissertation process. My husband, Ben Chapman, has been by my side encouraging me to continue moving forward throughout this journey. I appreciate the sacrifices he made and the patience he demonstrated as I completed my dissertation. Additionally, I thank my seven-month-old twin daughters, Aleaha and Norah Chapman, who inspired me to complete my dissertation even when it did not seem possible. Everyday as they grow, they teach me about life and the importance of living in the present. I thank Ben for spending a tremendous amount of time caring for our children as I completed my dissertation. Additionally, I am forever thankful for the help of my mother and sisters with our children as I worked on my dissertation. Finally, I felt confident as I travelled to Alfred to defend my dissertation and left our daughters under the care of Kristen and my mother. I could not have completed the project without my family's tremendous help with and love for our children.

## Table of Contents

|  |      |
|--|------|
| Abstract .....   | viii |
| Chapter 1. Introduction .....  | 1    |
| Chapter 2. Literature Review .....                                   | 4    |
| Family Background.....   | 5    |
| Parent-Child Attachment .....  | 7    |
| Measures of Attachment.....  | 7    |
| Impact of Attachment on Development .....                            | 10   |
| Impact of Attachment on Reading.....                                 | 11   |
| Home Literacy .....  | 14   |
| Parental Familiarity with Children’s Literature .....                | 17   |
| Frequency of Reading .....   | 21   |
| Longitudinal Trends .....  | 22   |
| Supportiveness During Literacy Interactions.....                     | 24   |
| Parental Teaching of Reading Skills .....                            | 24   |
| Impact of Parent-Child Interactions on Reading.....                  | 26   |
| Longitudinal Impacts of Interactions on Literacy .....               | 30   |
| Interactions Between Factors Influencing Early Literacy Skills ..... | 31   |
| Current Study .....  | 33   |
| Chapter 3. Method .....  | 36   |
| Participants.....  | 36   |
| Variables in the Model.....  | 36   |
| Family Background .....  | 36   |
| Parent-Child Attachment.....   | 37   |
| Home Reading.....  | 39   |
| Supportiveness of Parent Interactions .....                          | 39   |
| Early Reading Skills.....  | 41   |
| Model .....  | 43   |
| Chapter 4. Results .....   | 45   |
| Hypothesis 1.....  | 47   |
| Hypothesis 2.....  | 47   |
| Hypothesis 3.....  | 48   |
| Hypothesis 4.....  | 48   |
| Regression Analysis and Modifications to the Model .....             | 49   |
| Chapter 5. Discussion .....  | 51   |
| Implications.....  | 55   |

|  |    |
|--|----|
| Limitations and Future Research .....  | 56 |
| Summary .....  | 59 |
| References.....  | 61 |
| Tables   |    |
| Table 1: Characteristics of Variables .....  | 72 |
| Table 2: Descriptive Statistics for Variables.....   | 73 |
| Table 3: Correlations Between Variables .....  | 74 |
| Table 4: Direct, Indirect, and Total Effects of Variables<br>on Reading Scores.....  | 75 |
| Figures  |    |
| Figure 1: Proposed relationship between socioeconomic status,<br>attachment, supportiveness, home reading, and early reading ..... | 76 |
| Figure 2: Influence of socioeconomic status, attachment,<br>supportiveness, and home reading on early reading.....                 | 77 |
| Vita.....  | 78 |

## Abstract

The current research base includes gaps in the understanding of the influence of home environmental factors on children's skills. This study built on the existing knowledge base of the variables contributing to children's early reading skills. The data for the present study was compiled from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B). The study examined preschool children's early literacy skills and the impact of the family background, parent-child attachment, home reading, and the supportiveness of the parent during literacy interactions. The direct and indirect impacts of the variables on early literacy skills were explored through path analysis. The study found that the socioeconomic status of the family had the most robust impact on early literacy skills compared to the other variables. Direct effects were also found for the other variables (i.e., parent-child attachment, home reading, and supportiveness) on early literacy skills; however, none were as strong as the socioeconomic status of the family. Additionally, the study did not find that attachment, home reading, or supportiveness mediated the relationship between the other variables. The significant impact of socioeconomic status in the present study suggests the importance of including parents in literacy interventions for children. This suggests the need for interventions to employ multi-generational approaches in order to most effectively impact the literacy development of children.



## Chapter 1: Introduction

Literacy is a skill that impacts individuals throughout their lives. The National Adult Literacy Survey found that adults with higher literacy levels were more likely to be employed, to work more weeks in a year, and to earn higher wages than adults with lower literacy skills (Kirsch, Jungeblut, Jenkins, & Kolstad, 2002). Research shows that early literacy skills predict literacy skills later in life (Strickland & Riley-Ayers, 2006). In addition, Cunningham and Stanovich (1997) concluded that an early reading start leads to later literacy experience.

The family is influential in the development of literacy skills. Christenson and Buerkle (1999) completed a review of the literature on children's academic success, which conveyed the importance of the family environment, in addition to the school environment. Research highlights the influence of the socioeconomic status of the family on academic skills. Children from families of lower socioeconomic statuses demonstrate weaknesses in academic skills when compared to children from families of higher socioeconomic statuses (Baer, Baldi, Ayotte, & Green, 2007; Bowey, 1995; Christian, Morrison, & Bryant, 1998; Fantuzzo et al., 2005; Lee, Grigg, & Donahue, 2007). Family environment factors, other than the socioeconomic status, also contribute to early literacy skills. For example, Smith and Dixon (2001) found that the quality and amount of literacy activities influences children's literacy skills.

Researchers have also highlighted the importance of the overall parent-child relationship on literacy activities. For example, the attachment between the parent and child impacts interactions when book reading (Bus, Belsky, van Ijzendoorn, & Crnic, 1997; Bus & van Ijzendoorn, 1988b; Bus, & van Ijzendoorn, 1992). In addition, a

correlation exists between mother-child attachment and the frequency of mother-child book reading (Bus, & van Ijzendoorn, 1992; Bus, & van Ijzendoorn, 1995). Bus and van Ijzendoorn (1992) discussed the possibility that more frequent and effective reading leads to a more secure attachment. However, these researchers concluded that the likelihood is higher that secure attachments impact subsequent reading behaviors.

Exposure to literacy at home is a factor that impacts early literacy skills, as demonstrated by numerous studies (Christian, et al., 1998; de Jong & Leseman, 2001; Foy & Mann, 2003; Frijters, Barron, & Brunello, 2000; Griffin & Morrison, 1997; Hood, Conlon, & Andrews, 2008; Payne, Whitehurst, & Angell, 1994; Rush, 1999; Scarborough, Dobrich, & Hager, 2001; Senechal & LeFevre, 2002; Senechal, LeFevre, Hudson, & Lawson, 1996; Senechal, LeFevre, Thomas, & Daley, 1998). This research has assessed the home literacy environment by examining early literacy exposure, such as book reading, visits to the library, and/or the number of books in the home.

There is a body of research exploring the supportiveness of parents during interactions with children, in which the supportiveness of parents during literacy activities has been studied. For example, the sensitivity that the parent demonstrates toward the child (Clingenpeel & Pianta, 2007; de Jong & Leseman, 2001; Rabidoux & MacDonald, 2000; Whitehurst et al., 1988), the parent teaching the child (Hood et al., 2008; Neumann, Hood, & Neumann, 2009; Senechal & LeFevre, 2002; Senechal et al., 1998), and the parent expression of positive regard toward the child (Dodici, Draper, & Peterson, 2003; Merlo, Bowman, & Barnett, 2007) have all been linked to children's early literacy skills.

Thus, research has examined both the quality and quantity of literacy interactions in the home environment, and the impact of attachment on these interactions. There is evidence that all of these factors affect children's literacy skills; however, more research is needed to explore the interactions of these variables on the development of early literacy skills. This study will explore the influence of the family background, parent-child attachment, the extent of home reading, and the supportiveness of the parent during such literacy interactions, on preschool children's early literacy skills. In addition to examining the direct impact of the variables on early literacy skills, interactions between the variables will be explored by investigating the indirect impact of the variables on early literacy skills through other variables. A better understanding of the influence of home environmental factors on early literacy skills will build on the current knowledge base of the factors contributing to these important skills.

## Chapter 2: Literature Review

The development of literacy begins early in children's lives as they interact with their environment. Lonigan and Whitehurst (1998a) discussed an emergent literacy approach, which views literacy as originating in life before the point that children start school. Whitehurst and Lonigan (1998) pointed out the significant impact that preschool literacy activities have on the development of literacy. In addition, the researchers conveyed that an emergent literacy approach theorizes that reading, writing, and oral language skills grow together through interactions with other individuals in the environment. Furthermore, these skills develop prior to formal instruction. For example, exposure to books is important in the development of early literacy. Morrow and Temlock-Fields (2004) concluded from their literature review that "one of the most important things we have learned about literacy development is that early exposure to books and print is crucial. The early exposure enhances children's language development, a definite predictor of reading success" (p. 96).

A consensus exists in the literature that early literacy and language entails many components. Adams (1990) indicated that reading encompasses many skills and is a complex system. Various studies highlight the components of reading. For example, Leseman and de Jong (1998) examined literacy and language development by measuring receptive vocabulary, word decoding, and reading comprehension. The Assessment of Literacy and Language (ALL) is one example of a comprehensive model for measuring many factors of literacy and language skills of children in preschool to first grade (Lombardino, Liberman, & Brown, 2005). The ALL assesses the following areas: listening comprehension, language comprehension, semantics, syntax, phonological

awareness, alphabetic principles/phonics, and concepts about print. This measure examines language difficulties, which can affect children's reading. The aforementioned skills have all been established as measures of preschool children's literacy and language skills (Bowey, 1995; Christian et al., 1998; de Jong and Leseman, 2001; Frijters et al., 2000; Griffin & Morrison, 1997; Lonigan & Whitehurst, 1998b; Payne et al., 1994; Rush, 1999; Scarborough et al., 2001; Smith & Dixon, 2001, Whitehurst et al., 1994).

A body of research shows that the attainment of these literacy skills encompasses many factors. The family background (Bowey, 1995; Smith & Dixon, 2001), attachment between the parent and child (Bus and van Ijzendoorn, 1988b; Bus and van Ijzendoorn 1995), literacy activities in the home (Christian et al., 1998; de Jong and Leseman, 2001; Frijters et al., 2000; Griffin & Morrison, 1997; Lonigan and Whitehurst, 1998b; Payne et al., 1994; Rush, 1999; Scarborough et al., 2001; Whitehurst et al., 1994), and the supportiveness of parents during reading (de Jong & Leseman, 2001; Roberts, Jurgens, & Burchinal, 2005) have all been established as variables impacting the development of literacy skills. These factors will each be explored in the literature review.

### *Family Background*

The socioeconomic status of the family impacts the skills that children acquire. For example, Christian et al. (1998) found that low maternal education puts children at risk for inadequate academic skills, while Fantuzzo et al. (2005) identified both family poverty and low maternal education as factors in children's poor academic and behavioral skills.

The impact of socioeconomic status on children's early literacy skills has been specifically studied. For example, Bowey's (1995) study of preschool children in

Australia found a relationship between the children's phonological sensitivity and the occupation of fathers based on the skill requirement of the job. But, Smith and Dixon (2001) found more complex relationships when they examined four year olds from various socioeconomic backgrounds. The families were below the poverty line or middle class. The study entailed a parent questionnaire, which measured the quality and amount of parent-child literacy activities. The results pointed to differences between the literacy skills of children from low and middle class families, as the children from low-income backgrounds demonstrated lower scores on understanding the function of print and knowledge of letter names and sounds. However, the study showed that the literacy experiences themselves (i.e., storybook reading) impacted early literacy, apart from the socioeconomic status of the family. Thus, experiential factors, in addition to the background of the family, influence the emergence of early literacy skills.

Another line of research has shown differences in the interactions during parent-child storybook reading based on the background (i.e., income level) of the family. Baker, Mackler, Sonnenschein, and Serpell (2001) observed 61 first-grade children from various backgrounds during mother-child storybook reading. The participants were from a longitudinal study called the Early Childhood Project. Mothers who were better educated and from middle-income families, demonstrated more positive interactions during storybook reading when compared to mothers who were less educated and from lower income families.

Finally, a meta-analysis of book reading studies concluded that book reading impacts children of all socioeconomic statuses (Bus, van Ijzendoorn, & Pellegrini, 1995). Therefore, Bus et al. (1995) indicated the importance of encouraging parent-child book

reading in low-income families who experience limited exposure to literacy. Book reading is imperative in low-income families due to literacy barriers that the families may face.

### *Parent-Child Attachment*

In addition to the socioeconomic level of the family, the parent-child relationship influences child development. Parent-child attachment originates early in a child's life, and parent behavior influences the attachment that develops between a child and parent. Thompson (2001) attested that "a secure attachment reflects the warmth and trust of early caregiver-child relationships. It provides a foundation for positive relationships with peers and teachers, healthy self-concept, and emotional and moral understanding" (p. 26). In contrast, insecure attachments are characterized by children feeling distrust or uncertainty for their caregivers (Thompson, 2001).

Bretherton (1992) examined pivotal work on attachment by John Bowlby and Mary Ainsworth. His review highlighted the importance of the environment of the infant in attachment, while other research (Carlson, 1998; Madigan, Moran, Schuengel, Pederson, & Otten, 2007; Morisset, Barnard, Greenberg, Booth, & Spieker, 1990; Moss, Bureau, Cyr, Mongeau, & St-Laurent, 2004) has emphasized the impact of parent-child attachment on development. Thus, environment, attachment, and development appear to create a cascade of influence on a child's life.

*Measures of Attachment.* Researchers have measured attachment in laboratory settings and in the naturalistic environment. Solomon and George (1999) reviewed Ainsworth's measurement of attachment used in laboratory settings. The review consisted of a description of the Strange Situation attachment classification system

developed by Ainsworth. The exploration behaviors of the child are impacted by the ongoing patterns of interactions between the child and parent. The Strange Situation procedure thus consists of observing a child as the parent leaves and reunites with the child in a laboratory. The child is classified as secure, avoidant, or ambivalent/resistant after observing reunions with the caregiver.

Moss, Bureau, et al. (2004) clearly described these attachment classifications as used in their study, and by other attachment researchers. First, the secure classification involves a relaxed interaction between the parent and child. Children who exhibit secure attachment explore the environment through the parent. The avoidant classification entails the child avoiding the parent. For example, the child will often ignore the parent and most likely only have short parent-child discussions. Next, the ambivalent/dependent classification consists of the child demonstrating both dependent and resistant behaviors. For example, the child may follow the parent, but the child's exploration is hindered by the parent and child interactions. Lastly, Solomon and George (1999) described the additional classification of disorganized/ disoriented. Disorganized infants act in an unpredictable manner. Moss and colleagues also indicated that disorganized children may try to control the parents, show confusion, and demonstrate incomplete movements. The classifications of avoidant, ambivalent/ dependent, and disorganized are all considered types of insecure attachment.

In addition to classification of parent-child pairs after a separation and reunion, the Attachment Q-Sort is another method of assessing parent-child attachment in the naturalistic environment. The 1985 Attachment Q-Set (AQS), developed by Waters and Deane (as cited in Andreassen & Fletcher, 2007), employs the Q-Sort procedure. It



contains 100 items printed on cards and placed into 9 piles by the person completing the sort. This involves placing examples of child behavior during stressful parent-child situations into one of nine piles, based on how characteristic the descriptions are with the behavior of the child (i.e., ranging from “highly characteristic” to “highly uncharacteristic”). In 1995 an updated version of the AQS was published by Waters (as cited in Andreassen & Fletcher, 2007). This scale consists of 90 items, 45 of which overlapped with the original scale. While the Strange Situation is a structured method of classifying attachment in the laboratory, the AQS is a technique of using scores to determine attachment in the naturalistic setting. Thus, the AQS is a way to measure the level of attachment in the home environment.

Studies have compared the two methods of assessing attachment. Teti, Nakagawa, Das, and Wirth (1991) used the Attachment Q-Set (AQS) and Strange Situation classifications. The results indicate that the mothers’ AQS scores and Strange Situation classifications both examined children’s security. Vaughn and Waters (1990) also compared these two attachment measures (i.e., the AQS and the Strange Situation). The researchers uncovered some significant overlap between the Q-Sort scores and classifications from the Strange Situation. Also, they noted the benefit of more exact scoring when using the AQS compared to the Strange Situation. The Q-Sort is also advantageous because it is a method of assessing attachment at home.

Research has examined utilizing the Q-Set in different environments. DeMulder, Denham, Schmidt, and Mitchell (2000) assessed attachment in the home and school with the Q-Set. In this study, researchers used the Q-Set after observations in the home and a modified version of the Q-Set after observations in school. The 94 preschool participants

were part of a larger longitudinal study. Interestingly, the researchers noted a significant relationship between security with the mother and security with the teacher for boys, but not for girls in the study.

*Impact of Attachment on Development.* The attachment measures described above have been employed to study the impact of parent-child attachment on children's development. Carlson (1998) suggested that the early caregiving environment and later psychopathology in adolescence are linked through disorganized attachment. Using structural equation modeling, her longitudinal study measured infant-mother attachment with the Strange Situation. She found that disorganized attachment was impacted by risk factors in the environment (e.g., maternal caregiving and maternal relationship status) and influenced later psychopathology.

Additionally, Moss, Cyr, and Dubois-Comtois (2004) examined the relationship between mother-child attachment and behavioral problems. They also measured attachment through separations and reunions of mother and child pairs. Mother-child pairs with secure attachment demonstrated more open communication than insecure pairs. Children with disorganized attachments (i.e., controlling-punitive, controlling-caregiving, and insecure-other) exhibited poorer interactions with their mothers when compared to other groups (i.e., secure and insecure-organized children). Also, more behavioral problems were reported for children with controlling-punitive attachments than children with secure attachments (Moss, Cyr, et al.). Furthermore, Madigan et al. (2007) also found that maternal behavior and externalizing problem in two year olds was mediated by disorganized attachment measured through the Strange Situation. The

studies demonstrate the link between variables in the environment, attachment, and the development of children.

In addition to the impact of attachment on social and behavioral development, researchers have investigated the influence of attachment on cognitive and language skills. Morisset et al. (1990) looked at mother-child interaction of various categories of high-risk mothers (e.g., low education level and low social support, less than 20 years old and low social support, alcohol or drug addition, or previous child maltreatment). The researchers measured mother-child attachment with the Strange Situation, children's cognitive capacities using the Bayley Scales of Infant Development, and children's language skills using the Preschool Language Scale. They found that for children at tremendous risk (i.e., low socioeconomic status and low maternal functioning), a secure attachment between the infant and mother served as a protective factor. The results indicated that infant-mother attachment mediated the connection between the environmental risk and the cognitive and language abilities of children (Morisset et al.).

Thus, research has established the link between the children's early environment and children's social, emotional, cognitive, and language development through attachment. However, overall the sample sizes were small and homogeneous in the literature. Additional research is warranted with a more diverse and larger sample size.

*Impact of Attachment on Reading.* An association has been established between attachment and several aspects of literacy. Researchers have studied the more specific relationship between attachment and children's interest in literacy. Bus and van Ijzendoorn (1988a) examined mother-child pairs from high socioeconomic backgrounds during the Strange Situation when the children were two years old. The researchers

examined the mother-child pairs for secure and insecure (i.e., avoidant and resistant) attachment. Then, three years later, the mothers completed a questionnaire on children's reading ability and kindergarten teachers filled out a questionnaire regarding prereading instruction. The study found that children categorized as securely attached compared to children categorized as insecurely attached, demonstrated a higher parent reported interest in written material. The study noted similar written language opportunities for children of all attachment categories at home and in school.

In addition to children's interest in reading, attachment has been linked to the amount and quality of reading conducted in the home. For example, Bus and van Ijzendoorn (1992) completed a study that determined that the relationships between a mother and child impacted both the frequency and quality of reading. The study involved children of an average age of four from low socioeconomic backgrounds. The study measured attachment through separation and reunion of mother-child dyads. Children of securely attached mother-child pairs were read to more frequently than children of insecurely attached dyads. Also, pairs who read together more frequently experienced less need to refocus the child when reading compared to infrequent reading pairs. Bus and van Ijzendoorn discussed the possibility that more frequent and effective reading leads to secure attachment. However, they concluded that it is more likely that secure attachments impact reading tasks and the continuation of these tasks.

Researchers have further examined the relation between attachment, measured through separation and reunion, and the frequency of reading. Bus and van Ijzendoorn (1995) found that mothers' self-reported frequency of reading with their children was correlated with attachment; mother-child reading pairs who read less demonstrated more

insecure attachment than reading pairs who frequently read. Also, children in the dyads who read less exhibited more actions unrelated to the book reading during observations (e.g., refocusing).

In addition to frequency of home reading, Bus and van Ijzendoorn (1988b) explored the relationship between attachment of the caregiver-child and the quality of literacy interactions. Using a cross-sectional study, the researchers studied mother-child pairs from a mix of socioeconomic backgrounds. The children ranged from ages one to five years old. The researchers measured attachment through separation and reunion of mothers, and conducted observations of the pairs completing various tasks, including written language. The study categorized the dyads into the following attachment types: secure, anxiously avoidant, and anxiously resistant. The results show that securely attached pairs demonstrated interactions that were more positive and focused more on reading when compared to anxiously attached pairs. The securely attached pairs exhibited fewer child distractions, less disciplining by the mother, more child exploration, and more mother reading instruction than anxiously attached pairs.

The impact of attachment on reading was further demonstrated by Bus et al. in a 1997 longitudinal study. They found that involvement in book reading is influenced by the mother-infant relationship. Insecure mother-infant pairs, measured through the Strange Situation, exhibited less rewarding and productive behaviors when reading compared to secure pairs. The study did not find the same outcome for father-infant pairs. Bus and colleagues noted the impact that early parent-infant relationships can have on reading activities. However, they indicated that a limitation to the study is that the infants

were all boys. Overall, the aforementioned studies demonstrate the influence of parent-child relationships on children's literacy.

### *Home Literacy*

In addition to the impact of the attachment between the child and parent on literacy development, other lines of research have examined the influence of other home literacy practices on children's early literacy skills.

Griffin and Morrison (1997) demonstrated that the home literacy environment reported by parents when the children were in kindergarten predicted children's receptive vocabulary, general knowledge, and reading skills in kindergarten and general knowledge and reading skills in second grade. They developed a measure of the quality of the home literacy environment (i.e., Home Literacy Environment Scale). The home literacy environment was measured via a questionnaire that consisted of the following questions: the number of magazine subscriptions in the home, the number of newspaper subscriptions in the home, the hours of television the child watched per week, how often a library card was used by someone in the household, how often someone read to the child, the number of books the child owned, and how frequently the parents read to themselves. A study by Christian and colleagues is a good example of research using the Home Literacy Environment Scale developed by Griffin and Morrison. Christian et al. (1998) demonstrated a strong connection between the family literacy environment and early academic skills (i.e., reading, receptive vocabulary, general information, and letter recognition) in kindergarten. Interestingly, the literacy environment was not associated with math achievement.

Other researchers have utilized their own scales to measure home literacy. Payne et al. (1994) looked at the association between the parent reported home literacy environment of Head Start children and children's vocabulary skills. The study used nine questions from the Stony Brook Family Reading Survey (Whitehurst, 1992) (i.e., frequency of reading with the child, age when reading to the child began, number of minutes read to the child yesterday, number of picture books in the house, frequency that the child asks to be read to, frequency that the child looks at books by self, frequency of library trips, duration of day that the caregiver reads to self, and amount the caregiver enjoys reading to self). Payne noted that the Stony Brook Reading Survey assesses family variables through 52 multiple-choice questions, each with four or five answer choices. The Payne study measured the receptive and expressive vocabulary skills of four-year-old children. The researchers indicated that home literacy explained 12% to 18.5% of the variance in vocabulary scores. Additionally, caregiver reading had less of an impact on vocabulary scores than child-caregiver literacy activities. Rush (1999) also examined literacy activities in the home of children in Head Start with the nine questions from the Stony Brook Family Reading Survey that were selected by Payne et al. The Rush study examined three key early literacy skills (i.e., letter-naming fluency, onset recognition fluency, and phoneme blending) and also assessed the language skills of receptive and expressive vocabulary. The results affirmed the connection between parent reported literacy activities in the home and children's early literacy and vocabulary skills.

Recent research has confirmed the link between home literacy activities and early literacy skills. Bracken and Fischel (2008) studied reading behavior of 233 preschool children from low-income families. Parent-child reading behavior was measured through

parent report of several literacy behaviors (e.g., frequency of shared reading and visits to the library). Furthermore, the study assessed children's learning readiness (i.e., print knowledge, emergent writing skills, and linguistic awareness), receptive vocabulary, letter knowledge, and story/print concepts. The results showed a significant association between parent-child reading and all the literacy areas measured.

Other research has demonstrated inconsistencies with the previously discussed impact of the home literacy environment on reading skills. Stainthorp and Hughes (2000) studied children who read fluently and children who did not read fluently. The 29 children were from stable backgrounds, based on the education and employment of their parents, and just starting school in England. The study examined parent reported environment influences (e.g., library visits, playing literacy games, and book reading) on reading ability. The results indicated no differences between the fluent and nonfluent readers. Thus, more exploration is warranted on the variables that contribute to children's early literacy.

Another study highlighted inconsistencies in the link between home literacy and early literacy skills. Weigel, Martin, and Bennett (2006) measured the impact of the literacy environment on preschool children's literacy and language skills through structural equation modeling. The children were mostly from middle-income families. The researchers assessed the parent-child literacy activities (e.g., frequency of book reading and visits to the library), parental literacy habits, parental reading beliefs, parental demographics (i.e., age, level of education, household income, and grades in school), and children's reading interest through questionnaires. Furthermore, children's literacy and language skills (i.e., print knowledge, emergent writing, expressive language,



and receptive language) were evaluated with standardized assessments. The results showed that parent-child activities were associated with reading interest and print knowledge. However, parent-child literacy activities were not linked to the other variables (i.e., expressive language, receptive language, and emergent writing). Instead, receptive language and expressive language were significantly impacted by parental demographics. The statistical significance remained a year after the original measurement.

*Parental Familiarity with Children's Literature.* Researchers have measured another aspect of home literacy exposure through parental familiarity with children's literature. Senechal et al. (1996) studied middle-income four- and five-year-old children from Canada. To study parental familiarity, the researchers developed the Children's Title Checklist and Children's Author Checklist as a measure of parents' knowledge of children's books. Additionally, children's knowledge of books was assessed through showing children illustrations from storybooks and asking them about the title, the characters, and the story. Senechal et al. concluded that the children's and parents' knowledge of storybooks impacted children's language skills. In addition, they found that the book knowledge measures were more powerful than parent reported reading frequency. The researchers indicated that the findings may be due to social-desirability biases and difficulty approximating frequencies of literacy activities when self-reporting.

A related study further highlighted the impact of exposure to literacy on the development of specific early literacy skills. Senechal et al. (1998) studied storybook reading of kindergarten and first grade children in Canada. Overall, the education level of the children's parents was above the national average in Canada. Children's storybook

exposure was measured thorough the Children's Title Checklist and Children's Author Checklist, which were developed in a previously discussed study (Senechal et al., 1996). The study indicated that storybook exposure predicted oral language (i.e., vocabulary, listening comprehension, and phonological awareness), but not print concepts, alphabet knowledge, invented spelling, and decoding (i.e., labeled as written language in the article) for kindergarten and first graders.

This line of research has demonstrated the benefit of using parents' familiarity with children's literature as a measure of home literacy. Senechal and LeFevre (2002) longitudinally studied storybook exposure with four-and five-year-old Canadian children having parents with above average levels of education. The researchers found that a parent completed checklist of titles and authors of children's storybooks best measured storybook reading in the home. Thus, the checklist was used instead of the frequency of storybook reading. In tracking literacy skills over time, Senechal and LeFevre suggested that home literacy practices directly lead to grade one receptive language skills, but not to phonological awareness, print concepts, alphabet knowledge, invented spelling, and word decoding. Furthermore, receptive language predicted first grade phonological awareness.

Other studies have further explored the impact of home literacy on receptive vocabulary. Hood et al. (2008) examined parent-child reading for low-to middle-class preschool children. The study used a composite score of a parent literacy checklist of children's book titles (i.e., Title Recognition Test) and parent reported literacy activities (e.g., frequency of book reading to the child and number of children's books). The results affirmed that the parent-child reading composite was directly associated with receptive vocabulary in first grade, but did not directly impact other literacy skills (e.g., letter-word

identification and phonological awareness). Thus, Senechal and LeFevre (2002) and Hood et al. established a direct influence of home literacy on receptive vocabulary, but not a direct impact on other literacy skills.

Aram and Aviram (2009) examined the impact of storybook reading on language and alphabetic skills. The study consisted of kindergarten children from middle class backgrounds in Israel. They measured storybook reading by assessing maternal recognition of authors and key sentences. The results pointed to a significant association between storybook reading and language skills (i.e., defining nouns). However, similar to previous studies (i.e., Hood et al., 2008; Senechal & LeFevre, 2002), a significant correlation was not found between storybook reading and alphabetic skills (i.e., word writing, word recognition, and letter knowledge). Aram and Aviram indicated that children's alphabetic skills showed links only to maternal education. Additionally, Evans, Shaw, and Bell (2000) used the children's title checklist, but did not detect a relationship between the checklist and language/literacy skills after factoring in age, parent education, and child ability. Thus, other environmental factors contribute to the development of literacy skills. Further research explored these inconsistencies in the research on book exposure and the specific relationships between home literacy variables and children's early literacy skills.

Senechal, Pagan, Lever, and Ouellette (2008) measured the connection between parent-child shared book reading and language abilities of four-year-old Canadian children. Shared reading was measured with parent reported frequency of reading, frequency of library visits, and an average of the children's book titles and authors checklists. In addition, the researchers assessed parent exposure to adult book authors

through a parent-completed checklist of book authors. The study found that parent-child shared reading significantly impacted children's expressive vocabulary and comprehension of morphemes (e.g., noun-verb agreement, derivational suffixes, and pronouns). In addition, once shared reading was taken into account, the parents' exposure to adult literature did not significantly predict their children's expressive vocabulary or morphological comprehension, but was associated with syntax comprehension (i.e., understanding of complex phrases and sentences). The researchers concluded that parent literacy exposure mediated the link between shared book reading and children's syntax comprehension. Thus, complex relationships between factors in conjunction with parent-child shared book-reading influence the skill development of children.

Some studies have shown both direct and indirect relationships between literacy interactions and literacy skills. For example, Frijters et al. (2000) studied five- and six-year-old children in urban Canada. The study measured home literacy through parent report of the following: the frequency of reading to the child, the frequency of library visits, the number of books in the house, the age parents began reading to the child, and the recognition of storybook titles. The results indicated that home literacy directly influenced receptive vocabulary. Furthermore, home literacy impacted letter name/sound knowledge; however, once children's phonological awareness was entered into the regression analysis, letter name/sound knowledge was not significant. Thus, the researchers concluded that home literacy indirectly affected letter name/sound knowledge through phonological awareness. This demonstrates the complex interactions between the variables that contribute to literacy skills.

*Frequency of Reading.* The aforementioned studies have examined the impact of literacy activities on literacy skills. The frequency of home book reading is one of the important contributors to early literacy skills. Research has specifically examined the impact of frequency of book reading on literacy skills. Sonnenschein and Munsterman (2002) studied storybook reading of low- and middle-income families identified from a longitudinal study. The identified families indicated that home-based reading happened at least once a month. During the summer before kindergarten, parents rated the amount of children's storybook reading. The researchers measured children's emergent literacy skills in the spring of kindergarten. The results showed that reading frequency was significantly associated with phonological awareness (i.e., understanding of rhyme and alliteration) and understanding of print (i.e., understanding of print and letter recognition). However, reading frequency and story comprehension were not correlated in this study. The finding for understanding of print is in contrast to other studies (i.e., Aram & Aviram, 2009; Hood et al., 2008; Senechal & LeFevre, 2002; Senechal et al., 1998), which did not find a link between reading frequency and print skills.

A meta-analysis summarized the findings from home literacy research measuring the frequency of literacy activities. Bus et al. (1995) examined the impact of preschool book reading on literacy (i.e., language, reading skills, and early literacy). The researchers reviewed 29 studies. The studies were grouped by how book reading was quantified (i.e., parent-child reading frequency or a composite of literacy activities/environmental literacy characteristics). In addition, the researchers grouped the studies by three outcome measures: language measures, reading achievement, and emergent literacy. Emergent literacy included name writing, letter naming, and phoneme

blending. The meta-analysis found an overall effect size of  $d = 0.59$  (i.e., between a medium and a strong effect size) for book reading and the outcome measures. The researchers noted that this corresponds with 8% of the variance in literacy and language skills being explained by book reading. Specifically, the following effect sizes, between medium and strong, were found between book reading and the outcome measures:  $d = 0.67$  for language skills,  $d = 0.55$  for reading skills, and  $d = 0.58$  for emergent literacy. Thus, the strongest effect was found between book reading and language skills when compared to the reading and literacy effect sizes. The study highlighted the decrease in the impact of book reading on literacy skills as children read independently. Also, Bus et al. concluded that measuring book reading by a reading frequency count (i.e., a count of times that parents read to the child per week) or as part of a literacy composite score (e.g., parent-child reading, parent reading, library trips, and books in the home) revealed comparable literacy results. The meta-analysis results showed that literacy and language skills were associated with the frequency of parent-child reading, that the relationship is greater in preschool children compared to older children, and that the measurement of book reading by a frequency count or composite score highlighted similar literacy outcomes. In addition, in order to generalize the results of the effects of the home reading, more research is needed with a diverse and large sample.

*Longitudinal Trends.* Studies have examined the relationship between reading and later literacy skills. Scarborough et al. (2001) studied 56 middle-class children's reading by parent reported frequency of reading in the home during preschool. The results showed that weak second grade readers, compared to better readers, had less experience with book reading at home.

A study by de Jong and Leseman (2001) is another example of the impact of literacy activities during preschool on later reading achievement. De Jong and Leseman researched the impact of literacy activities on 69 inner-city children's reading skills in the Netherlands. The study found that the frequency of mother reported literacy activities (e.g., reading to children, parent reading, and child prewriting) in kindergarten was associated with vocabulary and word decoding at first grade. However, there was a decline in the relationship between the literacy activities and word decoding from first to third grade. At grade three word decoding was no longer statistically significant. The researchers suggested that the weakening of the relationship exists because after a year of instruction, home literacy activities do not further impact word decoding. It appears that word decoding is more impacted by instruction at that point. The study supports the results from the meta-analysis by Bus et al. (1995). The researchers indicated that early literacy encounters influences initial literacy skills. Also, literacy activities were not associated with listening comprehension in grade one or reading comprehension in grade one or three (de Jong & Leseman). Thus, the frequency of literacy activities is only a predictor at certain stages in the process of developing early literacy skills.

Research has demonstrated the importance of examining factors, in addition to the frequency of reading, which contribute to the development of literacy skills. Scarborough and Dobrich (1994) completed a review of 31 studies, which examined the impact of reading to preschoolers on literacy. The review indicated that no more than about 8% of the overall variance in literacy achievement is attributable to reading to preschoolers. This highlights the need to view literacy development as shaped by other factors in addition to parent-child reading.

The abovementioned research highlights the impact of home literacy activities on the development of early literacy skills. However, other factors, in addition to the amount of home literacy activities, influence the development of literacy. We turn next to specific interactions during literacy activities that are associated with children's literacy.

### *Supportiveness During Literacy Interactions*

*Parental Teaching of Reading Skills.* Researchers have examined the impact of parental teaching on children's literacy development. A meta-analytic review found that reading interventions are most helpful when parents were trained to teach skills rather than encouraged to read to their children (Senechal, 2006). For example, Haney and Hill (2004) found that parents' self-reported direct teaching of word writing and the alphabet was associated with better child literacy skills measured through testing.

Parental teaching during literacy activities assists in building up children's literacy skills through the use of scaffolding. This process was defined by Wood and colleagues (as cited in Neumann et al., 2009) as a child accomplishing a goal that he/she could not complete independently through using cues and prompts provided by the parent. Neumann et al. completed a case study of a child from a family of middle income. The study found that learning about print in the environment (e.g., road and food signs) and using various senses when interacting with a child was associated with the child's early literacy skills.

In addition, there appears to be a connection between children's active participation during reading and children's early literacy skills. Lonigan and Whitehurst (1998b) found that teaching parents skills in having the child become the storyteller when reading, a technique they call dialogic reading, leads to significant changes in expressive



language of low-income preschool children. Whitehurst et al. (1994) completed a study at Head Start involving dialogic reading at home and school, in combination with a phonemic awareness program at school. The intervention group participated in dialogic reading and the phonemic awareness program and the control group experienced the usual Head Start curriculum. The intervention significantly impacted children's skills in writing and print concepts. Thus, the children in the intervention group scored higher on subtests measuring writing and print concepts when compared to the children in the control group. In addition, parent follow-through with the home book reading affected children's language skills. These findings suggested that language skills are influenced by one-on-one interactions with an adult and that group literacy activities may not be adequate to influence language skills for children from low-income backgrounds.

Researchers have also established differing influences of teaching depending on the measured literacy skill. For example, Senechal et al. (1998) found that the frequency of teaching behaviors in the home, measured through parent report of the frequency that they teach their children to read words and print words, predicted children's skills in what the researchers labeled as written language (i.e., print concepts, alphabet knowledge, invented spelling, and decoding). However, teaching behaviors did not predict oral-language (i.e., vocabulary, listening comprehension, and phonological awareness). This is the opposite impact that storybook exposure had on language skills. As previously explained, storybook exposure impacted oral language skills and not written language skills.

Related research by Senechal and LeFevre (2002) concluded that parent reported teaching of reading and writing skills directly influenced first grade emergent literacy

skills (i.e., print concepts, alphabet knowledge, invented spelling, and word decoding). Furthermore, emergent literacy skills predicted first grade phonological awareness. Similarly, Foy and Mann (2003) showed that parental teaching of reading skills impacts phoneme awareness directly and indirectly through letter knowledge and vocabulary. Similarly, Hood et al. (2008) studied parent teaching on literacy skills. The study found that the frequency of parental teaching (i.e., alphabet, writing name, and reading words) directly impacted preschool letter-word identification. However, parental teaching led to other literacy skills (e.g., phonological awareness and receptive vocabulary) only indirectly through letter-word identification. Thus, the impact of teaching on literacy development depends on the assessed outcome variable.

*Impact of Parent-Child Interactions on Reading.* The research pointing to the influence of parent-child interactions on the development of literacy has already been introduced. Pianta (2004) provided an overview of the research on how relationships influence literacy. The review showed that relationships between adults and children influence literacy by instructing children in literacy skills and promoting communication, motivation, interest, and general knowledge. For example, researchers have examined the quality of reading interactions on literacy behaviors. Sonnenschein and Munsterman (2002) observed storybook reading in children's homes before kindergarten. The study examined storybook readings' affective quality (i.e., reading expression, contact with child, child's and reader's involvement, and reader's sensitivity to child's engagement). Furthermore, the study measured children's motivation for reading during first grade. The study concluded that children's reading motivations were impacted by the affective

quality of interactions during reading before kindergarten. Thus, interactions during storybook reading before formal school entry impacted later views of reading.

The responsiveness of parents during parent-child reading seems to influence the continuation of literacy interactions. Rabidoux and MacDonald (2000) studied mother and child interactions during 15 to 30 minute reading sessions to one-to three-year-old children with language delays. The results show that adult responsiveness led to longer interactions between the mother and child during storybook reading.

Research has examined the impact of sensitivity during parent-child interactions on early literacy development. Clingenpeel and Pianta (2007) determined that the sensitivity of the mother during early play activities led to later instruction while reading. The researchers examined the interaction between mothers and three-year-old children during play. The 58 pairs were part of the NICHD Study of Early Child Care at the University of Virginia site. Coders rated the supportive presence of the mother, respect for the autonomy of the child, and hostility during play between the mother and children. A measure of sensitivity was developed through the coders' scores. Three years later the researchers examined the instructional interactions between children and mothers during a book reading activity when the children were in first grade. The researchers instructed the children and mothers to read books together for 10 minutes. The study measured the mothers' discussion about the books and use of open-ended questions (i.e., meaning and language instruction) and teaching about the alphabetic principle (i.e., decoding instruction). The results showed a significant relationship between the sensitivity of mothers during play activities with their young children and discussing meaning and language instruction while reading a book to their children three years later. The

researchers did not find a significant relationship between sensitivity and decoding instruction.

It is important for parents to be cognizant of child directed speech during interactions, as this will affect the development of literacy skills. Whitehurst et al. (1988) examined picture book reading activities with middle-class children. The program entailed a four-week parent-child reading period using an experimental group and a control group. Parents in the experimental group were educated on how to use child-directed speech (e.g., ask open-ended questions, respond appropriately to children's questions, and decrease straight book reading) when reading with a child. The parents in the control group were not instructed to modify parent-child reading behaviors. The researchers indicated similarities in reading frequencies of both groups, but the children in the experimental group scored higher on measures of expressive language skills. Thus, child-directed speech during parent-child book reading impacted children's language skills.

Researchers have assessed the stimulation of children's home environment on early literacy skills. Merlo et al. (2007) assessed Head Start children's home learning environment in the following areas: language stimulation, stimulation through toys/games/reading material, and stimulation of academic behavior. A significant link was found between the home learning environment and rhyming ability of the children. However, the home learning environment was not associated with reading ability on a standardized reading achievement measure (i.e., Test of Early Reading Ability).

A related aspect of supportiveness was introduced in work by Baker et al. (2001), who studied 61 children during parent-child storybook reading in a longitudinal study.

The study examined the affective environment during reading by ratings of the following: child's expression while reading, parent's expression while reading, parent-child physical contact, parent involvement, child involvement, and parent's sensitivity to child's involvement during the interaction. Also, the study involved coding verbal interactions (i.e., meaning-related categories and word recognition categories) during reading. The meaning-related categories consisted of the following: talk about the immediate content of the story, talk beyond the story, and talk about the pictures. Furthermore, word recognition examined the strategies parents used to assist their children in identifying words and situations that parents supplied unknown words. The results showed that children's book reading, in grades two and three, was associated with more talk beyond the story and a more positive affective climate during reading in first grade. However, the affective climate of interactions and talk beyond the story were not associated with reading skills at grades one or three. Moreover, the study demonstrated that basic reading and reading comprehension skills were associated with the prior reported amount of storybook reading. The researchers suggested a possible link between interactions during parent-child storybook reading and reading skills through exposure to challenging reading at home after analyzing the regression data. However, the researchers affirmed that structural equation modeling could not be used in their study to assess this proposed link due to the small sample size.

Roberts et al. (2005) expanded research by exploring the relationship between the overall quality and responsiveness of the home environment and children's language and early literacy skills with 72 participants from a longitudinal study. The researchers used correlations to analyze the results. The overall responsiveness of the home environment

was studied by exploring the primary caregiver's emotional and verbal responsiveness, acceptance of the child's behavior, organization of the environment, academic and language stimulation, and maternal involvement with the child. The study measured the frequency of book reading, child's interest in book reading, book reading strategies, and maternal sensitivity. The results show that maternal sensitivity and book reading strategies were significantly associated with receptive vocabulary. The frequency of book reading and the child's interest in book reading were not significantly linked to language and literacy outcomes. The study highlighted that the overall home environment most strongly predicted children's language and early literacy skills (i.e., receptive language, receptive language, alphabet knowledge, conventions of print, and constructing meaning from print). Thus, the home environment had more of an influence on children's skills than the frequency of shared book reading, child's interest in reading, book strategies, and maternal sensitivity (Roberts et al.). This points to the importance of the caregiver's responsiveness to the child on the development of the child's literacy skills. Continued longitudinal research is needed, with a larger sample size, to further understand the complex relationship between various literacy activities and early literacy skills.

*Longitudinal Impacts of Interactions on Literacy.* A body of research has examined the relationship between several parent-child interactional variables on later early literacy skills. Specifically, the impact of the language of the child, language of the parent, sensitivity/responsivity, emotional tone, and joint attention during interactions on children's development has been studied (Dodici, et al., 2003). The researchers used data from a longitudinal study using Head Start families. The study consisted of observations of parent-child interactions, parent report of reading, and early literacy assessments (i.e.,

receptive vocabulary, symbolic representation, and phonemic awareness). The results showed that early literacy is impacted by the quality of parent-child interactions. In addition, the research highlights the superiority of observations of interactions compared to parent report of literacy. However, this longitudinal study only included 27 families.

The influence of parental nurturance on later reading has also been examined. Merlo et al. (2007) explored parental nurturance through parental self-report and observations of Head Start children's emergent reading ability. The results specified that children's current reading was not linked to parent nurturance. However, the researchers found a significant association between nurturance of the preschool parent and children's reading achievement 3 to 4 years later.

Researchers indicated that there are gaps in our knowledge base of the impact of interactions during reading. Roskos and Twardosz (2004) reviewed studies of family book reading. They concluded that more research is needed in the area of emotional relationships during book reading.

#### *Interactions Between Factors Influencing Early Literacy Skills*

A series of studies highlighted the complex influence of interactional qualities during various activities on literacy skills. De Jong and Leseman (2001) longitudinally studied the social-emotional quality of mother-child interaction by observations during reading and a problem-solving task (i.e., categorization task) in kindergarten. The observers rated the mother's behavior toward the kindergarten child for their supportive presence, respect for the child's autonomy, effective structuring/limit setting, and confidence in the success of the ongoing interaction. Also, the instruction quality during book reading (e.g., labeling pictures and explaining connections) and a problem-solving

task (e.g., labeling and sorting) were assessed. The researchers analyzed the results through correlations and hierarchical multiple regression. The results show that vocabulary at grade one was impacted by the instructional quality and social-emotional quality of book reading and a problem-solving task. Also, listening comprehension and word decoding at grade one were influenced by the social-emotional quality during a problem-solving task and the instructional quality of both tasks. Reading comprehension at grade one was not significantly associated with any of the home literacy or problem solving variables. However, reading comprehension at grade three was impacted by the social-emotional quality during problem-solving, instruction quality during book reading, and instruction quality problem-solving. The only variable that impacted word decoding at grade three was the instructional quality during problem-solving. The authors concluded that the association between the quality of parent instruction and grade three reading comprehension was mediated by oral language skills (i.e., vocabulary and listening comprehension) measured at grade one. Thus, the relationship between parent instruction and reading comprehension is best explained by the indirect route through oral language.

A pivotal study combined family background, home literacy, and social-emotional factors to look at the development of literacy skills over time. Leseman and de Jong (1998) studied the impact of literacy opportunities, instructional qualities, cooperation of the individuals, and the social-emotional qualities of interactions (i.e., supportive presence, respect for the child's autonomy, effective structuring and limit setting, and confidence) on receptive vocabulary, word decoding, and reading comprehension with 89 children from the Netherlands. The longitudinal study examined



home literacy during parent-child book reading when the children were four, five, and six years old. Also, the researchers measured the children's oral language (i.e., receptive vocabulary) at ages four and seven and children's literacy skills (i.e., word decoding and reading comprehension) at age seven. The study measured the relationship between the variables through structural equation modeling. The results indicated that the combined impact of the home literacy factors is stronger than the single variable home literacy impact on oral language and literacy. The study demonstrates that the family background impacts children's language and literacy skills through home literacy. In addition, oral language at age four mediated the relationship between family background and children's oral language and literacy at age seven.

Thus, de Jong and Leseman (2001) and Leseman and de Jong (1998) found that oral language mediated the relationship between the variables. The researchers used longitudinal data to examine the impact of the environment on literacy skills. De Jong and Leseman researched the variables through multiple regression. Leseman and de Jong discussed that the background of the family impacts skills by first influencing home literacy through structural equation modeling.

#### *Current Study*

The research findings reviewed above have examined both shared book reading and qualities of the interaction between parents and young children during literacy activities. The reviewed research highlights the wide range of literacy and language skills that have been studied, as well as the various aspects of quality interactional patterns.

The present study will further explore the link between family socioeconomic status level, parent-child attachment, the frequency of book reading, and parent-child

interactions on early literacy skills. A solid research base demonstrates the impact of family background on interactions during reading, the frequency of literacy activities, and children's early literacy skills. Also, as previously stated, Morisset et al. (1990) found that infant-mother attachment mediated the relationship between the environmental risk and the cognitive and language abilities of children. Research has been discussed that shows that a secure attachment between the parent and child impacts the frequency and quality of reading. In addition, studies have established a connection between the frequency of literacy activities and children's early literacy. However, research shows differences in the impact of the frequency of literacy activities based on the assessed early literacy skill (Frijters et al., 2000; Sonnenschein & Munsterman, 2002; Weigel et al., 2006). Furthermore, studies have established the connection between parent-child interactions during literacy activities and early literacy skills.

Given these well-established findings of various aspects of literacy development, the purpose of the current study is to examine the relationships between the family background, parent-child attachment, frequency of family book reading, and parent supportiveness during interactions, and their impact on children's early reading skills. The present study builds on the variables and relationships between the variables outlined in the extant research. Inconsistencies exist as to the impact of the variables independently and in conjunction with one another. In addition, prior research used small homogeneous samples in many of the reviewed studies. The present study will analyze the variables simultaneously using a large and diverse sample size. The following hypotheses will be investigated using path analysis:

1. The frequency of parent-child reading will directly impact children's early

reading skills.

2. The socioeconomic status of the family will have a greater impact on children's early reading skills indirectly, through parent-child attachment, parent supportiveness, and frequency of reading, than directly on children's early reading skills.

3. Parent-child attachment and parent supportiveness will have a direct impact on children's early reading skills.

4. Parent-child attachment and parent supportiveness will have a greater impact indirectly, through frequency of parent-child reading, on children's early reading skills, than directly on children's early reading skills.

Thus, this study will further the existing understanding of the variables that contribute to early literacy. This knowledge can assist in developing programs to increase the literacy skills of children.

## Chapter 3: Method

### *Participants*

The data for the present study was compiled from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) and sponsored by the National Center for Education Statistics. The data from the ECLS-B is protected. The researchers obtained informed consent from the participants and require rigorous procedures to ensure confidentiality when using the data set. Alfred University was granted permission to use the data set and agreed to the parameters specified for utilizing the data.

The ECLS-B consists of a nationally representative sample of about 10,700 children born in the United States in 2001. However, subject attrition resulted in fewer participants at each point in the data collection. The study includes children from a variety of socioeconomic and racial/ethnic backgrounds. Data was collected when the children were approximately 9 months old, 2 years old, 4 years old/preschool age (i.e., one year away from kindergarten), and kindergarten age (Andreassen & Fletcher, 2007; Najarian, Snow, Lennon, & Kinsey, 2010). The current study used data from the two-year old and preschool waves.

### *Variables in the Model*

The variables in the current study were measured for use in the ECLS-B. Table 1 lists the variable names, the age of the children when the data was collected, brief descriptions of the variables, and coding information. The researchers collected the two-year-old data during 2003-2004 and they compiled the preschool data during 2005-2006.

*Family Background.* The present study used the SES composite score, from the two-year-old data collection wave, to measure family background. The ECLS-B

measured the Socioeconomic Status (i.e., SES) of the family through questions that were part of the parent interview with the primary caregiver. The SES composite score was constructed with the following ECLS-B variables: father/male guardian's education, mother/female guardian's education, father/male guardian's occupation, mother/female guardian's occupation, and household income variables.

*Parent-Child Attachment.* The ECLS-B measured parent-child attachment at two years old with the Toddler Attachment Sort (TAS-45). The items address the children's behaviors in response to the mother and the children's level of independence. The TAS-45 was developed from the Attachment Q-Set (AQS) (Andreassen & Fletcher, 2007), but due to the time and training required to implement the AQS, another measure was developed for the ECLS-B. Therefore, Kirkland (as cited in Andreassen & Fletcher, 2007) developed the TAS-45 scale through multidimensional scaling and cluster analysis of items on both the original and revised versions of the AQS. The items were mapped and areas where items centered were identified. Based on the mapping, the items were separated into eight dimensions or hotspots, which illustrated attachment behaviors (i.e., Warm/Cuddly, Cooperativeness, Enjoys Company, Independent, Attention-Seeker, Upset by Separation, Avoids Others/Does Not Socialize, and Demanding/Angry). Next, the researchers chose 39 items with the strongest connection to the eight selected clusters (Andreassen & Fletcher, 2007).

Analysis and field-testing took place with additional items examining the disorganized attachment style, which was not represented in the AQS. Kirkland (as cited in Andreassen & Fletcher, 2007) indicated that six additional items could distinguish children who were disorganized, which were incorporated into the scale. Thus, the scale

included a ninth hotspot entitled, Moody/Unsure About How to React/Unusual Behaviors. Andreassen and Fletcher (2007) noted that it was the first national study to collect information on a disorganized attachment style.

The resulting TAS-45 thus provides dimensional scores (nine hotspots). In addition, this measure produces classification into one of four attachment styles (i.e., avoidant-attachment type A, secure-attachment type B, ambivalent-attachment type C, or disorganized-attachment type D). The current study examined the impact of secure attachment on the other variables in the study.

The final version of the TAS-45 contains 45 items, which were sorted into four piles (i.e., “almost always applies” to “rarely or hardly ever applies”). There was an additional pile for cards that were undetermined. Field interviewers completed this task in about 10 minutes after about 90 minutes of observation in the home. The task was completed on the field interviewers’ laptops. The field interviewers received training, which entailed learning about the TAS-45 items and utilizing the items to portray children’s behaviors. They were not provided with information about attachment.

During training, the attachment raters watched three simulated child assessment videos sent to them after the national training of secure, ambivalent, and avoidant attachment types. A video of the disorganized attachment type was not developed due to difficulties finding a child described with this attachment out of the mother-child volunteers. The raters did a sort after viewing, rewinding, and rewatching each video. The results indicated that on the three videotapes used for reliability, the scorers averaged 82 percent agreement. The developers of the TAS-45 deemed the overall reliability to be acceptable (Andreassen & Fletcher, 2007).

*Home Reading.* The ECLS-B researchers measured home reading by the frequency of shared book reading. This information was collected through the parent interview with the primary caregiver during the two-year-old data collection wave. Parent respondents were asked, “In a typical week, how often do you or any other family member do the following things with child?” “Read books to child?” The respondents answered from the following choices: “not at all,” “once or twice,” “3 to 6 times,” or “every day.” Although only one question was used to measure home reading, this question was the best indicator of the amount of reading as other questions did not provide information regarding reading frequency.

*Supportiveness of Parent Interactions.* The Two Bags Task was used to assess the parent-child interaction during a parent and child semi-structured activity. This measure was modified from the Three Bags Task, which was used in earlier large-scale studies, such as the Early Head Start Research and Evaluation Project and the National Institute of Child Health and Human Development (NICHD) Early Child Care Study (Andreassen & Fletcher, 2007). This task was shortened from prior studies as it required at least 15 minutes for the child and parent to complete the three tasks. Thus, the ECLS-B measure entailed only two bags and two activities (Andreassen & Fletcher, 2007). The present study used data from the two-year-old data collection wave; the preschool data wave included a similar task. However, it resulted in different scores that were not comparable and therefore not utilized in the present study.

The Two Bags Task consisted of the parent-child dyad playing with the contents of two bags. The first bag included a set of dishes and the second bag included a children’s picture book; the bags were numbered one and two. The book was titled, *Good*

*Night, Gorilla*, written by P. Rathmann (1994). The parent-child dyads were instructed to play with the two bags in numerical order for 10 minutes. Interviewers taped the parent-child interactions.

When the target children were twins, the same materials were used for both twins. In order to help to overcome the issue of the parent changing the way the book was read with the second twin, counterbalancing was used. The counterbalancing consisted of administering the task first to the first born twin on odd days and first to the second born twin on even days. The interviewer recorded the Two Bags Task on the same videotape for both twins. After the videotaping, all the materials, including the videotapes and the Child Activity Booklets, were sent to the designated office for coding.

The interviewers were provided with training before administering and taping the Two Bags Task. The training entailed practicing administration of the Two Bags Task and feedback on videotaping. Additional practice and training was provided if the interviewers had difficulties videotaping during training. A script in the Child Activity Book was used when administering the Two Bags Task. The interviewers were responsible for asking the parents if they had ever read *Good Night, Gorilla* to their child. The interviewers also noted the language that the parents used when reading the book and the start time of the Two Bags Task. All of this information was collected in the Child Activity Booklet.

The tapes were rated by trained staff (i.e., coders) on a 7-point Likert-type scale from very low (1) to very high (7) for parent and child scales tapping aspects of parent supportiveness and child responses. The six parent rating scales are as follows: Sensitivity, Intrusiveness, Stimulation of Cognitive Development, Positive Regard,



Negative Regard, and Detachment. The three child behavior scales include the following: Engagement of Parent, Sustained Attention, and Negativity Toward Parent. Three of the parent ratings (i.e., Sensitivity, Stimulation of Cognitive Development, and Positive Regard) were correlated with one another on a previous research project (i.e., Early Head Start Research and Evaluation Project). Thus, the ECLS-B research team calculated a composite of these three variables, labeled Supportiveness (Andreassen & Fletcher, 2007). The Supportiveness composite score was used in the present study to measure the interaction between the parent and child. Other Two Bags ratings were not used.

Training was provided to increase the reliability of ratings. Individuals chosen to train the coders were trained. Staff members had to demonstrate 90 percent agreement in order to pass the training. Then, these individuals trained the coders. Coders who spoke foreign languages were added to conduct the ratings for families speaking Mandarin and Spanish. The results indicate a 96.5 percent rating agreement over the year (i.e., 2003-2004) based on one weekly reliability tape (Andreassen & Fletcher, 2007).

*Early Reading Skills.* The ECLS-B assessed literacy and other cognitive skills of the children in the preschool wave. The current study used the reading skills data, from the cognitive portion of the assessment, collected during a one hour individualized assessment of cognitive abilities, motor skills, and physical growth conducted by the field interviewers. The researchers carried out pilot studies to identify items to measure early reading. Most of the reading test items were chosen from the following published assessments: PreLAS 2000 (Duncan & DeAvila, 1998), Peabody Picture Vocabulary Test–Third Edition (PPVT-III; Dunn & Dunn, 1997), and Preschool Comprehensive Test of Phonological and Print Processing (Pre-CTOPPP; Lonigan, Wagner, Torgesen, &

Rashotte, 2002). In addition, the researchers used some items from the ECLS-K (i.e., the Kindergarten Class of 1998-99) reading assessment and also created some new reading items for the ECLS-B (Najarian et al., 2010).

The researchers made the decision to administer the same preschool early reading assessment form to all the children. The field interviewers used skip and/or discontinue rules during the assessment. Thus, after a child could not answer a certain number of items, the field interviews administered the next section of the reading assessment.

The preschool reading assessment contained both literacy and language sections. The literacy segment of the evaluation examined the following skills with 37 items: receptive and expressive letter recognition, letter sounds, recognition of simple words, phonological awareness, knowledge of print conventions, and matching words. The language part of the preschool assessment contained a total of 36 items from the following measures: the PreLAS Simon Says subtest, the PreLAS Art Show subtest, and vocabulary items from the PPVT-Third Edition (Dunn & Dunn, 1997). The PreLAS Simon Says subtest measures language listening skills and the PreLAS Art show subtest assesses naming and descriptive vocabulary (Duncan & DeAvila, 1998).

The researchers further analyzed the test items for the ECLS-B based on Item Response Theory (IRT). IRT assumes that the individual's ability level for the measured concept and the test item impact the probability of a correct response on an item. This procedure calculates scores based on a limited range of items administered and estimates scores when the range of items differs between children. It approximates the number of items a child would have scored correctly if the field interviewers administered all of the questions to a child (Chernoff, Flanagan, McPhee, & Park, 2007; Najarian et al., 2010).

Thus, the field interviewers did not have to administer every item for the researchers to calculate a score and less time was spent administering the assessment.

Originally, the ECLS-B provided both literacy and language scores for preschoolers through IRT. However, the literacy and language scores were combined after the researchers collected the ECLS-B kindergarten wave data, as the research team found that unique scores for literacy and language were not suitable. Thus, the researchers developed a unidimensional early reading score. The current study used this reading scale score to measure preschool children's early literacy skills.

### *Model*

A model of direct and indirect effects of the variables on the early reading score was developed for the current study; it is provided in Figure 1. The model was analyzed through path analysis using the statistical modeling programs, Mplus (Muthén & Muthén, 2010) and Stata (StataCorp, 2011). Path analysis is the appropriate statistical procedure for the proposed study because it allows for the simultaneous examination of several direct and indirect paths between the measured variables. This procedure allows for different hypotheses to be tested for significance. In addition, path analysis accounts for the measurement error in the variables, and allows for the paths to be examined once the measurement error has been statistically removed from the model.

The current study therefore simultaneously examined the impact of the predictor variables of socioeconomic status, parent-child attachment, frequency of shared book reading, and supportiveness of parent interactions on the criterion variable of early reading skills. It was predicted that socioeconomic status would have a greater impact on early reading skills indirectly through parent-child attachment, frequency of reading, and

supportiveness than directly on early reading skills. Also, it was predicted that parent-child attachment and supportiveness would impact early reading directly, but that the aforementioned variables would have a greater impact indirectly through home literacy practices. Thus, it was proposed that the relationships between attachment on early reading and supportiveness on early reading would be mediated by home reading. Finally, the model explored whether parent-child attachment or supportiveness had a greater influence on early reading skills.

## Chapter 4: Results

The ECLS-B development team assigned the participants identification numbers and listed the variable scores on a spreadsheet. The database involved a planned oversampling of twins, which provides researchers with rich opportunity to answer research questions involving twins. In addition, the database developers utilized clusters of children when sampling. The database provided weighted scores to account for the oversampling and use of sampling clusters. The weighted scores also adjusted the data for nonresponses to variables.

The data was analyzed through the Statistical Package for the Social Sciences (SPSS) (IBM Corp., 2010). One of the first data analysis tasks was to understand the variable of attachment. This variable is composed of four categories (i.e., secure, ambivalent, avoidant, and disorganized), but it was posed that all the insecure styles (i.e., ambivalent, avoidant, and disorganized) functioned similarly. To examine this possibility, plots of attachment and the other variables were examined. The plots showed linearity of the various attachment styles. Specifically, the graphed data functioned similarly and did not demonstrate any significant differences between the plotted insecure attachment types (i.e., ambivalent, avoidant, and disorganized). I also tested the possible differences by using all the insecure styles in the model. No significant differences were found when compared to grouping the insecure attachment styles together. This affirmed that the insecure attachment styles did not function differently. Thus, the three insecure attachment categories were collapsed into one dummy variable, so that a secure versus insecure category measured the attachment variable. Either ordinal (i.e., home reading) or

ratio (i.e., SES, supportiveness, and early reading) scales measured the other variables in the current model.

I examined the frequencies of scores, means, and missing values, by using descriptive statistics, to better understand patterns in the collected data. Table 2 reports the means, standard deviations, and range of possible scores. Inspection of the data revealed considerable variation in the SES scores reflecting the range of children from various SES backgrounds. The attachment mean of 0.53 represents the proportion of children with a secure attachment, so there were comparable proportions of children who were securely and insecurely attached. Parents reported their preschool children were read to on average three to six times per week, which is near the upper range of possible scores. The mean score for the supportiveness composite was near the midrange of possible scores. Lastly, the mean early reading score was at the lower end of the range of possible scores on this literacy measure, with a large standard deviation illustrating the disparity in the scores. The lower score was not unexpected, given that the sample consisted of only preschool children.

Table 3 reports the correlations between the variables. The table shows that while home reading was correlated with all other variables, home reading and early reading scores have the strongest correlation. The attachment variable showed the weakest correlation with all other variables in the study.

The direct, indirect, and total effects of the variables, along with the statistical significances are listed in Table 4. Keith (1999) considers a path with an effect of .05 or higher as meaningful. Specifically, he considers an effect between .05 and .10 as small, an effect above .10 to .25 as moderate, and an effect above .25 as large.

*Hypothesis 1: The frequency of parent-child reading will directly impact children's early reading skills.*

The path between the parent-child reading variable and early reading skills is shown in Figure 2. The direct effect between the variables ( $Beta = .12$ ) was significant at the .001 level. The effect size was small to moderate. This result confirms the hypothesis that reading in the home has a direct impact on reading skills.

*Hypothesis 2: The socioeconomic status of the family will have a greater impact on children's early reading skills indirectly through parent-child attachment, parent supportiveness, and frequency of reading, than directly on children's early reading skills.*

This hypothesis predicts that parent-child attachment, parent supportiveness, and frequency of reading will act as mediator variables between SES and early reading. The results show that there was a significant large direct effect between SES and early reading ( $Beta = .34$ ). This was significant at the .001 level. This direct effect was stronger than any of the indirect effects (see Table 4). Even though the indirect effects were small, they reached statistical significance. The indirect effects between SES and early reading were as follows: attachment ( $Beta = .01$ ;  $p < .05$ ), supportiveness ( $Beta = .04$ ;  $p < .001$ ), and home reading ( $Beta = .04$ ;  $p < .001$ ). Even though the indirect effects reached statistical significance, the hypothesis was not supported because SES did not have a greater impact on children's early reading skills indirectly through the attachment, parent supportiveness, or home reading variables, than directly on children's early reading skills.

In addition, the results showed that SES had the strongest direct effect on early reading when compared to the direct effects of the other variables of home reading, attachment, and supportiveness. Additionally, SES had the largest total indirect effects on

early reading ( $\text{Beta} = .09$ ;  $p < .001$ ) when compared to the total indirect effects of the other variables of attachment ( $\text{Beta} = .03$ ;  $p < .001$ ) and supportiveness ( $\text{Beta} = .02$ ;  $p < .001$ ). The total indirect effects of SES were small while the total indirect effects of both attachment and supportiveness were not considered meaningful. However, all the indirect effects reached statistical significance.

The results also highlighted the role of SES on the other variables (i.e., attachment, home reading, and supportiveness). A moderate effect size was found for the relationship between SES and attachment ( $\text{Beta} = .17$ ;  $p < .001$ ), with large effects for SES on supportiveness ( $.38$ ;  $p < .001$ ) and on home reading ( $\text{Beta} = .31$ ;  $p < .001$ ). This is shown in Figure 2.

*Hypothesis 3: Parent-child attachment and parent supportiveness will impact children's early reading skills directly.*

The attachment to early reading and supportiveness to early reading paths are also depicted in Figure 2. The results point to significant paths for attachment to early reading ( $\text{Beta} = .05$ ;  $p < .05$ ) and supportiveness to early reading ( $\text{Beta} = .10$ ;  $p < .001$ ). The direct effect of attachment was not strong enough to be considered meaningful, while the direct effect of supportiveness was of a small magnitude. Even though the direct effect magnitudes were either not meaningful or small, they were significant. Thus, the results confirmed the hypothesis of a significant direct impact of parent-child attachment and parent supportiveness on early reading skills.

*Hypothesis 4: Parent-child attachment and parent supportiveness will have a greater impact indirectly, through frequency of parent-child reading, on children's early reading skills, than directly on children's early reading skills.*



This hypothesis indicates that home reading will mediate the relationship between attachment and early reading and supportiveness and early reading. The values of the paths can be seen in Table 4. The effect sizes were of a low magnitude (i.e., Beta of .01 for the indirect path between attachment and early reading and a Beta of .02 for the indirect path between supportiveness and early reading); however, both of these indirect effects through home reading were significant at the .001 level.

As previously noted, the direct paths between attachment and early reading (Beta = .05;  $p < .05$ ) and supportiveness and early reading (Beta = .10;  $p < .001$ ) were of minimal magnitude, but significant. These direct paths were stronger than the indirect effects of these variables through frequency of home reading. Therefore, as with the second hypothesis, this hypothesis was not supported. The direct effects of attachment and supportiveness had a larger influence on reading skills than indirectly through home reading. Thus, the results did not point to home reading as a variable that mediated the relationship between the other variables.

The results also showed that supportiveness and attachment directly impacted home reading, as both paths were significant. The direct path between supportiveness and home reading (Beta = .16;  $p < .001$ ) was considered to be of moderate strength, while the direct path from attachment to home reading (Beta = .10;  $p < .001$ ) was considered to be small.

#### *Regression Analysis and Modifications to the Model*

A regression analysis was conducted to explore how much variance the proposed model explained in early reading scores. The dependent variable (i.e., early reading) was regressed on the independent variables (i.e., SES, attachment, home reading, and

supportiveness). The results showed that the model explained 23% of the variance in early reading scores ( $R^2 = .23$ ). This was significant at the .001 level.

Of the independent variables, SES (Beta = .34) had the greatest impact on early reading skills when compared to home reading (Beta = .12), supportiveness (Beta = .10), and attachment (Beta = .05). Thus, a modification to the model was made to examine the impact that SES has on early reading scores without the other variables. The dependent variable (i.e., early reading) was regressed on the independent variable of SES. The results showed that this model explained 6% of the variance in early reading scores ( $R^2 = .06$ ). This was significant at the .001 level. This highlights the impact that SES alone has on early reading. In addition, the modification to the model shows that other factors also contribute to the variance in early reading scores.

## Chapter 5: Discussion

This study examined the impact of the home environment on early reading skills. Specifically, this study explored the influence of family background, parent-child attachment, the extent of home reading, and the supportiveness of the parent during interactions, on preschool children's early literacy skills. The research built on the extant knowledge base by studying the variables with a large sample from a longitudinal study (i.e., ECLS-B). Also, the present study explored the interaction of these variables through a model using path analysis.

The first hypothesis examined in this study was that the frequency of parent-child reading would directly impact children's early reading skills. The analysis found a small to moderate impact for the amount of home reading on preschool reading skills. Thus, as previous research highlighted, the amount of reading in the home influenced children's early reading skills (Bus et al., 1995; Sonnenschein & Munsterman, 2002). However, the amount of book reading did not have a large influence on preschool children's reading skills in the current study. One possible hypothesis as to why there was not a larger influence in the present study is that the question that measured the frequency of reading may not have accurately measured the variable. The variable was constructed from a single item. In addition, there could have been a self-report bias that impacted the accuracy of the acquired information regarding home reading. The high mean score for the home reading variable suggests this possibility.

Nonetheless, the above results confirmed what Scarborough and Dobrich (1994) found in their review of several studies examining the relationship between reading to preschoolers and literacy skills. As previously discussed, the review found that no more

than about 8% of the overall variance in literacy achievement is attributable to reading to preschoolers. The present model examined other variables that were found to have stronger effects on literacy than reading to preschoolers.

The study also tested the hypothesis that the socioeconomic status of the family will have a greater impact on children's early reading skills indirectly through parent-child attachment, parent supportiveness, and frequency of reading, than directly on children's early reading skills. The analysis revealed a large direct effect between SES and early reading.

The present results highlighted the robust impact that SES had on children's early reading when compared to the other variables (i.e., supportiveness, attachment, and home reading). This finding is consistent with the Weigel et al. (2006) study, which found that receptive language and expressive language were significantly impacted by parental demographics (i.e., age, level of education, household income, and grades in school). These findings also build on research completed by Evans et al. (2000), whose study did not find a relationship between reading and language/literacy skills after factoring in age, parent education, and child ability. The ECLS-B included a more diverse and nationally representative sample of SES levels and included more participants than these two studies. This allowed for closer examination and comparison of various SES levels. It highlights the tremendous impact that characteristics of the family have on the development of children, which may not be revealed in more homogeneous samples.

Another hypothesis that the present study investigated was that parent-child attachment and parent supportiveness would impact children's early reading skills directly. The results confirmed the hypothesis of a significant direct impact of parent-

child attachment and parent supportiveness on early reading skills; however, the effects were not strong. Thus, these variables did not contribute a tremendous amount to children's early reading scores, especially when compared to the effects of SES. The path analysis showed that the impact of supportiveness was stronger than the impact of attachment on early reading skills. It is possible that the relationship is stronger between supportiveness and early reading, than between attachment and early reading, because the measure of supportiveness involved literacy based activities while the measure of attachment did not entail literacy activities. The measure of supportiveness (i.e., the Two Bags Task) consisted of the parent-child dyad playing with a set of dishes and a children's picture book. Supportiveness was measured through assessing parents in the following areas: Sensitivity, Stimulation of Cognitive Development, and Positive Regard. In comparison, the Toddler Attachment Sort (TAS-45) examined the children's behaviors in response to the mother and the children's level of independence. The following attachment behaviors were explored with this measure: Warm/Cuddly, Cooperativeness, Enjoys Company, Independent, Attention-Seeker, Upset by Separation, Avoids Others/Does Not Socialize, Demanding/Angry, and Moody/Unsure About How to React/Unusual Behaviors. However, previous studies (Bus & van Ijzendoorn, 1988a; Bus & van Ijzendoorn, 1992; Bus & van Ijzendoorn, 1995) found connections between attachment and literacy utilizing the Strange Situation, which is a non-literacy based tool. It entails observing a child as the parent leaves and reunites with the child in a laboratory.

Finally, the study examined the hypothesis that parent-child attachment and parent supportiveness will have a greater impact indirectly, through frequency of parent-child reading, on children's early reading skills, than directly on children's early reading

skills. Prior research demonstrated a link between parent-child interactions, home reading, and later skills. For example, Baker et al. (2001) found that children's book reading was associated with the climate during reading. However, the climate was not associated with reading skills at grades one or three. Moreover, Baker et al. demonstrated that basic reading and reading comprehension skills were associated with the prior reported amount of storybook reading. Also, attachment has been linked to the amount and quality of reading conducted in the home. For example, Bus and van Ijzendoorn (1992) found that the relationships between a mother and child impacted both the frequency and quality of reading. They concluded that the results most likely indicate that secure attachments impact tasks and the continuation of the tasks.

The present results pointed to stronger direct effects than indirect effects. This result differs from what was expected based on the aforementioned studies. Thus, the present analysis did not find that home reading mediated the relationship between the other variables; however, the previously mentioned studies measured the variables when the children were at different ages than the children in the present study. It is possible that different facets of the variables were measured because the ages of the children were not aligned in the studies. For example, Baker et al. (2001) measured the literacy outcome variable beginning in first grade in comparison to the present study which measured the outcome variable in preschool. Research should further explore the relationship between the home environment and early literacy at similar points in time to previous studies so researchers can deduce more accurate comparisons.

The present study found significant and small to moderate effects of attachment and supportiveness on the amount of reading in the home. This builds on research that

examined the impact of attachment (Bus & van Ijzendoorn, 1988a; Bus & van Ijzendoorn, 1992; Bus & van Ijzendoorn, 1995) and supportiveness (Clingenpeel & Pianta, 2007; Rabidoux & MacDonald, 2000) on literacy activities. Many studies have shown the relationship between parent-child interactions and children's skill development. This study affirms the relationship between parent-child interactions and children's skills. However, as previously mentioned this study highlights the family background as the largest contributing factor to children's skill development. The interactions between parents and children are important, but perhaps the factors that contribute to the interactions between family members are more important.

### *Implications*

The significant impact of SES on the other variables in the present study suggests the importance of providing opportunities for parent education classes and interventions. In addition to educating parents in effectively interacting with and teaching their children important literacy skills, it is imperative to provide interventions that impact parents' overall skill development. Park (2008) conveyed that poverty is associated with other risk factors in the family and emphasized the benefits of beginning programs early in a child's life. This review of research also highlighted the importance of involving parents in interventions. Park noted that the involvement of parents increases skills in child development and parental support of services for children. The review denoted that valuable programs involve comprehensive services (e.g., nutrition, health care, family support, and educational practices). For example, Early Head Start (EHS) provides comprehensive services to children before and after birth. Programs, such as EHS, can have positive impacts on the development of children. EHS evaluations have shown

positive results in children's socioemotional and cognitive development at two and three years old. Thus, early comprehensive programs can tremendously impact children's skill development later in life.

Interventions impacting multi-generations can positively impact all individuals in the family. Duch (2005) reviewed literature on two-generation programs. The review noted that prior research established the following components of two-generation programs: a developmentally appropriate early-childhood program, parenting education, and adult education/job training. The Head Start program utilizes the two-generation principles. However, the review found that barriers exist in applying the components of the two-generation program. For example, parent involvement is not always part of Head Start programs. Duch highlighted the importance of involving parents and assisting them in becoming self-sufficient.

Increasing parenting involvement through interventions can increase parents' skills in interacting with their children. This can have a positive influence on the skills that children acquire through the interactions with their family members. Thus, intervening at the parent education level can simultaneously positively impact children. The present study suggests the need for interventions to use multi-generational approaches in order to most effectively increase children's skill level.

#### *Limitations and Future Research*

First, the data from the ECLS-B, did not allow for the use of variables that were not measured in the longitudinal study. For example, the current study measured the variable of supportiveness by a predetermined measure (i.e., the Two Bags Task) used in



the longitudinal study during the two-year-old wave of data collection. This did not allow flexibility in choosing other measures for the present study.

Furthermore, the present study used only one question to measure home reading because this question alone seemed applicable to what the present study was measuring. The researcher could not design additional questions to measure home reading utilizing prior research due to the preexisting measures used in the dataset. However, this decision to use the one question was supported by Bus et al. (1995). Their study concluded that measuring book reading by a reading frequency count or as part of a literacy composite score found comparable literacy results.

Measures of reading using title and author recognition have also been established in the literature base to gauge the frequency of home reading. This method provides a way to measure the construct of home reading without the confound of social-desirability when individuals self-report information. Senechal and colleagues used these techniques to study literacy skills (Senechal & LeFevre, 2002; Senechal et al., 1996; Senechal et al., 1998). Further research is warranted with larger and diverse sample sizes utilizing title and author recognition to overcome confounds when measuring the frequency of home reading through one self-reported question.

Another limitation to the present study is that the variables used were measured at different data collection points. The SES, attachment, home reading, and supportiveness variables were measured at age two, while early reading was measured at age four. It is possible that behaviors and interactions were not stable between the ages of two and four. The present study used data from those points in time due to limitations regarding when and how the variables were measured. For example, attachment was only measured at age

two. Also, the measure (i.e., Two Bags Task) used in developing the supportiveness variable in the current study, was measured differently at different data collection points. The researcher chose to use the two-year old data because of the desirability of how it was measured at age two. Future research should measure the impact of parent-child interactions and children's early reading skills during the same time period. This could point to the variables currently influencing children's early reading skills. In addition, it would be beneficial for research to measure each variable at different points in time. These additions can expand research within an age period and between age periods. Moreover, researchers could make comparisons on the unique impact of variables at different points in time.

Also, another limitation to the study is that a large sample size can inflate some of the strengths of the paths. The current study found many significant paths between the variables in the model, but few meaningful effect sizes. Thus, the significance of the paths may be partially an artifact of the large sample used for the study.

The present study measured early reading through a composite score. This was the only reading score available at the preschool level, and encompassed both literacy and language components. It may be helpful for future research to use separate literacy and language measures in the analysis. For example, the meta-analysis by Bus et al. (1995) found different effect sizes based on the early reading outcome measure employed. The language outcome measure demonstrated a higher effect size for book reading when compared to reading and literacy outcome measures. Thus, future research should separate language and literacy measures to help unravel the complex relationship between environmental variables and early reading skills.

Research could also further explore the robust impact of socioeconomic status. The influence of multi-generational interventions on families of various socioeconomic backgrounds can be examined. This can help gauge the success of intervention programs and assist in tailoring the interventions to most effectively influence skill development. Additionally, further exploring the variables in the study within homogeneous socioeconomic groups can highlight the impact of the variables on specific socioeconomic groups. For example, further examination of the variables with families of a low socioeconomic status can lead to a more thorough understanding of the interplay of the variables for people within this group. This can shed light on skills to target when developing intervention programs.

### *Summary*

This study examined several established connections between the home environment and early reading skills with a large longitudinal database. The results illustrated the sizeable impact that the background of the family had on early reading skills of preschool children. The present study found that the family background significantly impacted the supportiveness of parents during interactions with children, parent-child attachment, and the frequency of reading. These findings build on the current knowledge base and emphasize the significant role that the background of the family has on many aspects of interactions between parents and children and on children's development of skills. Interventions targeting parent education can impact all the variables in the present study. Specifically, parent programs can provide education, training, and support. These components can positively impact parents' occupations, family income, parent-child interactions, the level of attachment of the parent-child, and

the amount of reading in the home. In turn, the effect on these variables can influence children's skills. Thus, interventions that target the parental SES level, in addition to directly teaching children, can increase children's development. In conclusion, it is imperative to employ multi-generational interventions in order to most effectively impact interactions between family members and children's reading skill development.

## References

- Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, Massachusetts: Massachusetts Institute of Technology Press.
- Andreassen, C., & Fletcher, P. (2007). *Early childhood longitudinal study, birth cohort (ECLS-B) psychometric report for the 2-year data collection* (NCES 2007-084). Washington, DC: National Center for Educational Statistics, Institute of Education Sciences, U.S. Department of Education.
- Aram, D., & Aviram, S. (2009). Mothers' storybook reading and kindergartners' socioemotional and literacy development. *Reading Psychology, 30*, 175-194.
- Baer, J., Baldi, S., Ayotte, K. & Green, P. (2007). *The reading literacy of U.S. fourth-grade students in an international context: Results from the 2001 and 2006 progress in international reading literacy study* (NCES 2008-017). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
- Baker, L., Mackler, K., Sonnenschein, S., & Serpell, R. (2001). Parents' interactions with their first-grade children during storybook reading and relations with subsequent home reading activity and reading achievement. *Journal of School Psychology, 39*, 415-438.
- Bowey, J. (1995). Socioeconomic status differences in phonological sensitivity and first-grade reading achievement. *Journal of Educational Psychology, 87*, 476-487.
- Bracken, S. S., & Fischel, J. E. (2008). Family reading behavior and early literacy skills in preschool children from low-income backgrounds. *Early Education and Development, 19*, 45-67.

- Bretherton, I. (1992). The origins of attachment theory: John Bowlby and Mary Ainsworth. *Developmental Psychology*, 28, 759-775.
- Bus, A. G., Belsky, J., van Ijzendoorn, M. H., & Crnic, K. (1997). Attachment and bookreading patterns: A study of mothers, fathers, and their toddlers. *Early Childhood Research Quarterly*, 12, 81-98.
- Bus, A. G., & van Ijzendoorn, M. H. (1988a). Attachment and early reading: A longitudinal study. *The Journal of Genetic Psychology*, 149, 199-210.
- Bus, A. G., & van Ijzendoorn, M. H. (1988b). Mother-child interactions, attachment, and emergent literacy: A cross-sectional study. *Child Development*, 59, 1262-1272.
- Bus, A. G., & van Ijzendoorn, M. H. (1992). Patterns of attachment in frequently and infrequently reading mother-child dyads. *The Journal of Genetic Psychology*, 153, 395-403.
- Bus, A. G., & van Ijzendoorn, M. H. (1995). Mothers reading to their 3-year-olds: The role of mother-child attachment security in becoming literate. *Reading Research Quarterly*, 30, 998-1015.
- Bus, A. G., & van Ijzendoorn, M. H., & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research*, 65, 1-21.
- Carlson, E. A. (1998). A prospective longitudinal study of attachment disorganization/disorientation. *Child Development*, 69, 1107-1128.
- Chernoff, J. J., Flanagan, K. D., McPhee, C., & Park, J. (2007). *Preschool: First findings from the preschool follow-up of the early childhood longitudinal study, birth cohort (ECLS-B)* (NCES 2008-025). Washington, DC: National Center for

- Education Statistics, Institute of Education Sciences, U.S. Department of Education.
- Christian, K., Morrison, F. J., & Bryant, F. B. (1998). Predicting kindergarten academic skills: Interactions among childcare, maternal education, and family literacy environments. *Early Childhood Research Quarterly, 13*, 501-521.
- Christenson, S. L., & Buerkle, K. (1999). Families as educational partners for children's school success: Suggestions for school psychologists. In C. R. Reynolds & T. B. Gutkin (Eds.), *The handbook of school psychology* (3<sup>rd</sup> ed., pp. 709-744). New York: John Wiley & Sons.
- Clingenpeel, B. T., & Pianta, R. C. (2007). Mother's sensitivity and book-reading interactions with first graders. *Early Education and Development, 18*, 1-22.
- Cunningham, A. E., & Stanovich, K. E. (1997). Early reading acquisition and its relation to reading experience and ability 10 years later. *Developmental Psychology, 33*, 934-945.
- de Jong, P. F., & Leseman, P. P. M. (2001). Lasting effects of home literacy on reading achievement in school. *Journal of School Psychology, 39*, 389-414.
- DeMulder, E. K., Denham, S., Schmidt, M., & Mitchell, J. (2000). Q-Sort assessment of attachment security during the preschool years: Links from home to school. *Developmental Psychology, 36*, 274-282.
- Dodici, B. J., Draper, D. C., & Peterson, C. A. (2003). Early parent-child interactions and early literacy development. *Topics in Early Childhood Special Education, 23*, 124-136.
- Duch, H. (2005). Redefining parent involvement in head start: A two-generation

- approach. *Early Child Development and Care*, 175, 23-35.
- Duncan, S. E., and DeAvila, E. A. (1998). *Pre-LAS 2000*. Monterey, CA: CTB/McGraw-Hill.
- Dunn, L. M., and Dunn, L. M. (1997). *Peabody Picture Vocabulary Test—Third Edition* (PPVT-III). San Antonio, TX: Pearson.
- Evans, M. A., Shaw, D., & Bell, M. (2000). Home literacy activities and their influence on early literacy skills. *Canadian Journal of Experimental Psychology*, 54, 65-75.
- Fantuzzo, J. W., Rouse, H. L., McDermott, P. A., Sekino, Y., Childs, S., & Weiss, A. (2005). Early childhood experiences and kindergarten success: A population-based study of a large urban setting. *School Psychology Review*, 34, 571-588.
- Foy, J. G., & Mann, V. (2003). Home literacy environment and phonological awareness in preschool children: Differential effects for rhyme and phoneme awareness. *Applied Psycholinguistics*, 24, 59-88.
- Frijters, J. C., Barron, R. W., & Brunello, M. (2000). Direct and mediated influences of home literacy and literacy interest on prereaders' oral vocabulary and early written language skill. *Journal of Educational Psychology*, 92, 466-477.
- Griffin, E. A., & Morrison, F. J. (1997). The unique contribution of home literacy environment to differences in early literacy skills. *Early Child Development and Care*, 127-128, 233-243.
- Haney, M., & Hill, J. (2004). Relationship between parent-teaching activities and emergent literacy in preschool children. *Early Child Development and Care*, 174, 215-228.



- Hood, M., Conlon, E., & Andrews, G. (2008). Preschool home literacy practices and children's literacy development: A longitudinal analysis. *Journal of Educational Psychology, 100*, 252-271.
- IBM Corp. (2010). *IBM SPSS Statistics for Windows, Version 19.0*. Armonk, NY: IBM Corp.
- Keith, T. Z. (1999). Structural equation modeling in school psychology. In C. R. Reynolds & T. B. Gutkin (Eds.), *The handbook of school psychology* (pp. 3<sup>rd</sup> ed., 78-107). New York: John Wiley & Sons.
- Kirsch, I. S., Jungeblut, A., Jenkins, L., & Kolstad, A. (2002). *Adult literacy in America: A first look at the findings of the national adult literacy survey* (NCES 1993-275). Washington, DC: National Center for Education Statistics, Office of Educational Research and Improvement, U.S. Department of Education.
- Lee, J., Grigg, W., & Donahue, P. (2007). *The nation's report card: Reading 2007* (NCES 2007-496). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
- Leseman, P. P. M., & de Jong, P. F. (1998). Home literacy: Opportunity, instruction, cooperation and social-emotional quality predicting early reading achievement. *Reading Research Quarterly, 33*, 294-318.
- Lombardino, L. J., Liberman, R. J., & Brown, J. C. (2005). *Assessment of Literacy and Language*. San Antonio, TX: Pearson.
- Lonigan, C.J., Wagner, R.K., Torgesen, J.K., and Rashotte, C.A. (2002). *Preschool Comprehensive Test of Phonological & Print Processing*. Unpublished assessment.

- Lonigan, C. J., & Whitehurst, G. J. (1998a). *Getting ready to read: Emergent literacy and family literacy*. Bethesda, MD: National Institute of Child Health and Human Development.
- Lonigan, C. J., & Whitehurst, G. J. (1998b). Relative efficacy of parent and teacher involvement in a shared-reading intervention for preschool children from low-income backgrounds. *Early Childhood Research Quarterly*, 13, 263-290.
- Madigan, S., Moran, G., Schuengel, C., Pederson, D. R., & Otten, R. (2007). Unresolved maternal attachment representations, disrupted maternal behavior and disorganized attachment in infancy: Links to toddler behavior problems. *Journal of Child Psychology and Psychiatry*, 48, 1042-1050.
- Merlo, L. J., Bowman, M., & Barnett, D. (2007). Parental nurturance promotes Reading acquisition in low socioeconomic status children. *Early Education and Development*, 18, 51-69.
- Morisset, C. E., Barnard, K. E., Greenberg, M. T., Booth, C. L., & Spieker, S. J. (1990). Environmental influences on early language development: The context of social risk. *Development and Psychopathology*, 2, 127-149.
- Morrow, L. M., & Temlock-Fields, J. (2004). Use of literature in the home and at school. In B. H. Wasik (Ed.), *Handbook of family literacy* (pp. 83-99). Mahwah, NJ: Lawrence Erlbaum Associates.
- Moss, E., Bureau, J. F., Cyr, C., Mongeau, C., & St-Laurent, D. (2004). Correlates of attachment at age 3: Construct validity of the preschool attachment classification system. *Developmental Psychology*, 40, 323-334.
- Moss, E., Cyr, C., & Dubois-Comtois, K. (2004). Attachment at early school age and

- developmental risk: Examining family contexts and behavior problems of controlling-caregiving, controlling-punitive, and behaviorally disorganized children. *Developmental Psychology*, 40, 519-532.
- Muthén, L. K., & Muthén, B. O. (2010). *Mplus* (6th ed.). Los Angeles, CA: Muthén & Muthén.
- Najarian, M., Snow, K., Lennon, J., & Kinsey, S. (2010). *Early childhood longitudinal study, birth cohort (ECLS-B) preschool-kindergarten psychometric report* (NCES 2010-009). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
- Neumann, M. M., Hood, M., & Neumann, D. L. (2009). The Scaffolding of emergent literacy skills in the home environment: A case study. *Early Childhood Education Journal*, 36, 313-319.
- Park, B. (2008). The earlier, the better: Early intervention programs for infants and toddlers at risk. *Dimensions of Early Childhood*, 36, 3-6.
- Payne, A. C., Whitehurst, G. J., & Angell, A. L. (1994). The role of home literacy environment in the development of language ability in preschool children from low-income families. *Early Childhood Research Quarterly*, 9, 427-440.
- Pianta, R. C. (2004). Relationships among children and adults and family literacy. In B. H. Wasik (Ed.), *Handbook of family literacy* (pp. 175-191). Mahwah, NJ: Lawrence Erlbaum Associates.
- Rabidoux, P. C., & MacDonald, J. D. (2000). An interactive taxonomy of mothers and children during storybook interactions. *American Journal of Speech-Language Pathology*, 9, 331-344.

- Rathmann, P. (1994). *Good Night, Gorilla*. New York: Putnam.
- Roberts, J., Jurgens, J., & Burchinal, M. (2005). The role of home literacy practices in preschool children's language and emergent literacy skills. *Journal of Speech, Language, and Hearing Research, 48*, 345-359.
- Roskos, K. A., & Twardosz, S. (2004). Resources, family literacy, and children learning to read. In B. H. Wasik (Ed.), *Handbook of family literacy* (pp. 287-303). Mahwah, NJ: Lawrence Erlbaum Associates.
- Rush, K. L. (1999). Caregiver-child interactions and early literacy development of preschool children from low-income environments. *Topics in Early Childhood Special Education, 19*, 3-14.
- Scarborough, H. S., & Dobrich, W. (1994). On the efficacy of reading to preschoolers. *Developmental Review, 14*, 245-302.
- Scarborough, H. S., Dobrich, W., & Hager, M. (2001). Preschool literacy experience and later reading achievement. *Journal of Learning Disabilities, 24*, 508-511.
- Senechal, M. (2006). *The effect of family literacy interventions on children's acquisition of reading: From kindergarten to grade 3*. Retrieved August 25, 2010, from [http://www.lincs.ed.gov/publications/pdf/lit\\_interventions.pdf](http://www.lincs.ed.gov/publications/pdf/lit_interventions.pdf)
- Senechal, M., & LeFevre, J. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development, 73*, 445-460.
- Senechal, M., LeFevre, J., Hudson, E., & Lawson, E. P. (1996). Knowledge of storybooks as a predictor of young children's vocabulary. *Journal of Educational Psychology, 88*, 520-536.

- Senechal, M., LeFevre, J., Thomas, E. M., & Daley, K. E. (1998). Differential effects of home literacy experiences on the development of oral and written languages. *Reading Research Quarterly, 33*, 96-116.
- Senechal, M., Pagan, S., Lever, R., & Ouellette, G. P. (2008). Relations among the frequency of shared reading and 4-year-old children's vocabulary, morphological and syntax comprehension, and narrative skills. *Early Education and Development, 19*, 27-44.
- Smith, S. S., & Dixon, R. G. (2001). Literacy concepts of low-and middle-class four-year-olds entering preschool. *The Journal of Educational Research, 88*, 243-253.
- Soloman, J., & George, C. (1999). The measurement of attachment security in infancy and childhood. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 287-316). New York, NY: The Guilford Press.
- Sonnenschein, S., & Munsterman, K. (2002). The influence of home-based reading interactions on 5-year-olds' reading motivations and early literacy development. *Early Childhood Research Quarterly, 17*, 318-337.
- Stainthorp, R., & Hughes, D. (2000). Family literacy activities in the homes of successful young readers. *Journal of Research in Reading, 23*, 41-54.
- StataCorp. (2011). *Stata 12*. College Station, TX: Stata Press.
- Strickland, D. S., & Riley-Ayers, S. (2006). Early literacy: Policy and practice in the preschool years. In E. Frede & W. S. Barnett (Eds.), *Preschool policy brief* (issue

- 10). Retrieved August 25, 2010, from Rutgers University, National Institute for Early Education Research Web site: <http://www.nieer.org/resources/policybriefs/10.pdf>
- Teti, D. M., Nakagawa, M., Das, R., & Wirth, O. (1991). Security of attachment between preschoolers and their mothers: Relations among social interaction, parenting stress, and mothers' reports of the attachment Q-Set. *Developmental Psychology*, 27, 440-447.
- Thompson, R. A. (2001). Development in the first years of life. *The Future of Children*, 11, 21-33.
- Vaughn, B. E., & Waters, E. (1990). Attachment behavior at home and in the laboratory: Q-Sort observations and strange situation classifications of one-year-olds. *Child Development*, 61, 1965-1973.
- Weigel, D. J., Martin, S. S., & Bennett, K. K. (2006). Contributions of the home literacy environment to preschool-aged children's emerging literacy and language skills. *Early Child Development and Care*, 176, 357-378.
- Whitehurst, G. J. (1992). *Stony Brook Family Reading Survey*. Stony Brook, NY: Author.
- Whitehurst, G. J., Epstein, J. N., Angell, A. L., Payne, A. C., Crone, D. A., & Fischel, J. E. (1994). Outcomes of an emergent literacy intervention in Head Start. *Journal of Educational Psychology*, 86, 542-555.
- Whitehurst, G. J., Falco, F. L., Lonigan, C. J., Fischel, J. E., DeBaryshe, B. D., Valdez-Menchaca, M. C., & et al. (1988). Accelerating language development through picture book reading. *Developmental Psychology*, 24, 552-559.

Whitehurst, G. J., & Lonigan, C. J. (1998). Child Development and Emergent Literacy.  
*Child Development, 69*, 848-872.

Table 1

*Characteristics of Variables*

| Variable                       | Age       | Description  | Score Range  |
|--------------------------------|-----------|--|--|
| Socioeconomic Status Composite | Two Years | Father/male guardian's education, mother/female guardian's education, father/male guardian's occupation, mother/female guardian's occupation, and household income | -2.19 to 2.16  |
| Attachment                     | Two Years | Secure, avoidant, ambivalent, or disorganized attachment from Toddler Attachment Sort (TAS-45)   | Dummy Variable<br>Secure/<br>Insecure<br>0 or 1                                    |
| Home Reading                   | Two Years | In a typical week, how often do you or any other family member do the following things with child?"<br>"read books to child?"                                      | 1 to 4<br>1 = not at all<br>2 = once or twice<br>3 = 3 to 6 times<br>4 = every day |
| Supportiveness Composite       | Two Years | Parental Sensitivity, Parental Cognitive Stimulation, and Parental Positive Regard, from Two Bags Task   | 1 to 7<br>very low to<br>very high   |
| Early Reading Composite        | Preschool | Literacy Score   | 11.66 to 80.29   |



Table 2

*Descriptive Statistics for Variables*

---

| Variable       | Mean  | Standard Deviation | Range of Possible Scores |
|----------------|-------|--------------------|--------------------------|
| SES            | -0.03 | 0.85               | -2.19 to 2.16            |
| Attachment     | 0.53  | 0.50               | 0 to 1                   |
| Home Reading   | 3.12  | 0.90               | 1 to 4                   |
| Supportiveness | 4.34  | 0.87               | 1 to 7                   |
| Early Reading  | 25.46 | 10.50              | 11.65 to 80.29           |

---

Table 3

*Correlations Between Variables*

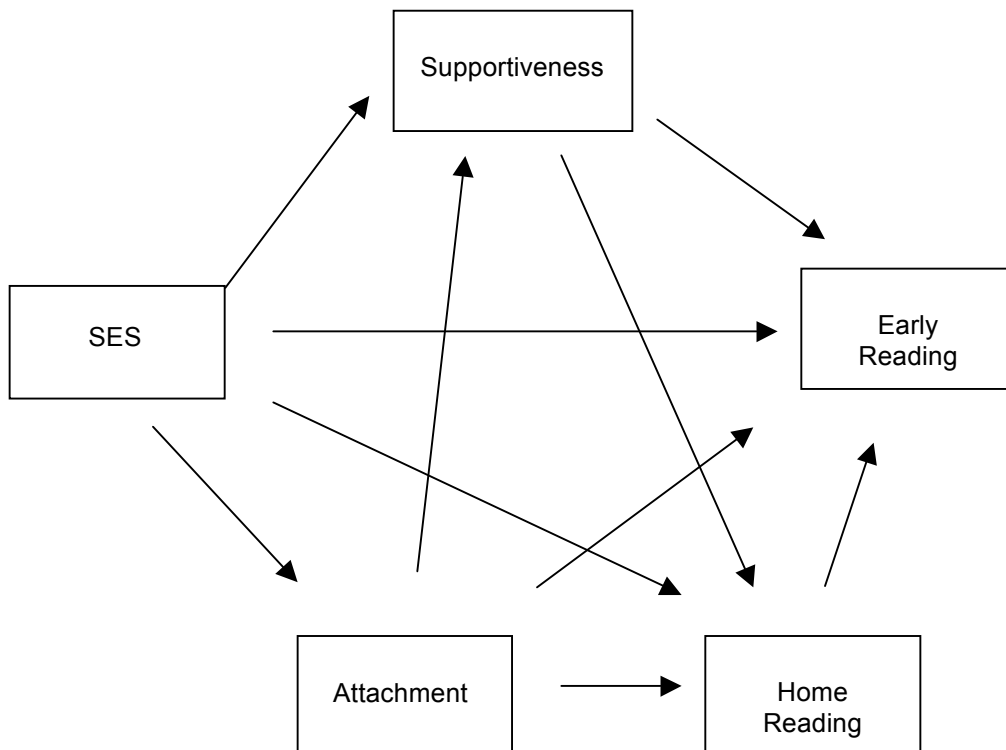
| Variables         | 1    | 2    | 3    | 4    | 5 |
|-------------------|------|------|------|------|---|
| 1. Early Reading  | —    |      |      |      |   |
| 2. Supportiveness | 0.26 | —    |      |      |   |
| 3. SES            | 0.25 | 0.28 | —    |      |   |
| 4. Home Reading   | 0.46 | 0.36 | 0.34 | —    |   |
| 5. Attachment     | 0.12 | 0.18 | 0.12 | 0.12 | — |

Table 4

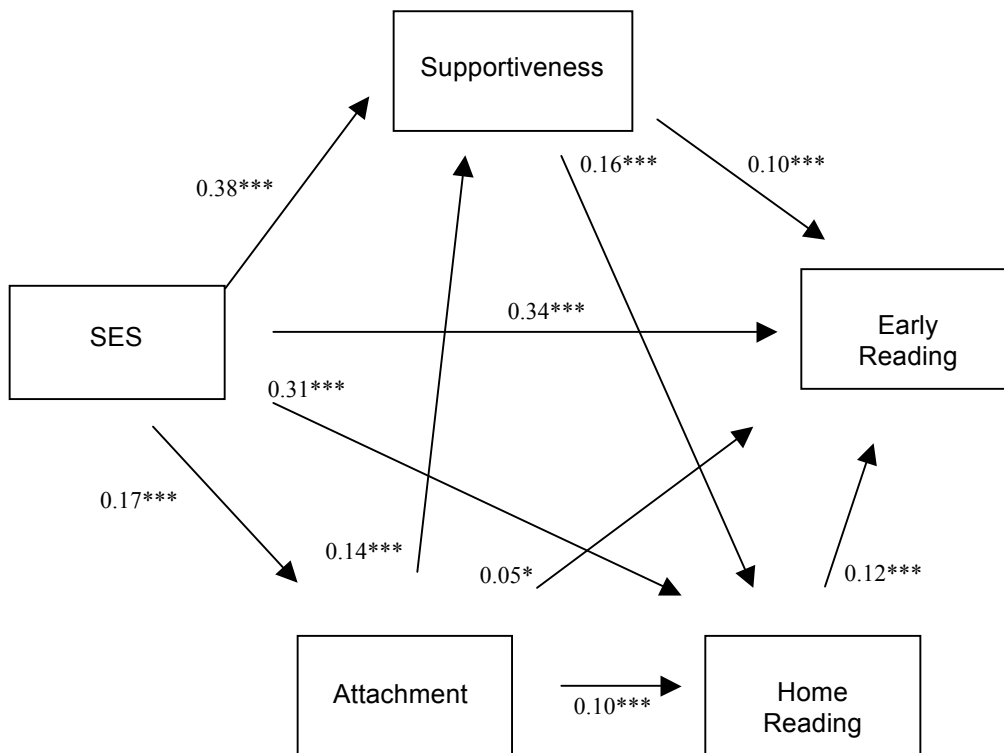
*Direct, Indirect, and Total Effects of Variables on Reading Scores*

| Effects                                | SES |     | Attachment |     | Supportiveness |     | Home reading |     |
|--|-----|-----|------------|-----|----------------|-----|--------------|-----|
|  | Std | p   | Std        | p   | Std            | p   | Std          | p   |
| Indirect effect through                |     |     |            |     |                |     |              |     |
| Home reading                           | .04 | *** | .01        | *** | .02            | *** |              |     |
| Supportiveness                         | .04 | *** | .02        | *** |                |     |              |     |
| Attachment                             | .01 | *   |            |     |                |     |              |     |
| Supportiveness-home reading            | .01 | *** | .00        | *** |                |     |              |     |
| Attachment-home reading                | .00 | *** |            |     |                |     |              |     |
| Attachment-supportiveness              | .00 | *** |            |     |                |     |              |     |
| Attachment-supportiveness-home reading | .00 | *** |            |     |                |     |              |     |
| Total indirect effects                 | .09 | *** | .03        | *** | .02            | *** |              |     |
| Direct effects                         | .34 | *** | .05        | *   | .10            | *** | .12          | *** |
| Total effects                          | .43 | *** | .08        | *** | .12            | *** | .12          | *** |

\*p < .05. \*\*p < .01. \*\*\*p < .001.



*Figure 1.* Proposed relationship between socioeconomic status, attachment, supportiveness, home reading, and early reading.



*Figure 2.* Influence of socioeconomic status, attachment, supportiveness, and home reading on early reading.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Vita  
Lena Marie Fantuzzi-Chapman

Rockaway, NJ

[lfantuzzi@gmail.com](mailto:lfantuzzi@gmail.com)

Educational History:

B.A., Psychology, May 2000, Douglass College, Rutgers University, New Brunswick, NJ

M.A., School Psychology, May 2004, Alfred University, Alfred, NY

Advanced Certificate, School Psychology, May 2006, Alfred University, Alfred, NY

Psy.D., School Psychology, December 2012, Alfred University, Alfred, NY

Professional Employment:

- Data collection in the visual cognition lab, Rutgers University (1999)
- Douglass Outreach Division, Douglass Developmental Disabilities Center, New Brunswick, NJ (2000-2009)
- Psychoeducational reevaluations, Addison Central School District, Addison, NY (2004-2005)
- Pre-Doctoral School Psychology Internship, Allegany-Limestone Central School District, Allegany NY (2005-2006)
- Taught an undergraduate course, Psychological Measurement, Alfred University (2005)
- School Psychologist, Sussex-Wantage Regional School District, Clifton E. Lawrence School, Sussex, NJ (2006-current)

Credentials:

NJ Certified School Psychologist

NY Certified School Psychologist

Awards:

Golden Key National Honor Society (Fall 1998)

Psi Chi (Spring 1999)

Graduated Magna Cum Laude, Rutgers University (May 2000)

The National Dean's List (Summer 2000)

Presentations:

Fantuzzi, L, Felski, C., Lattanzio, T., & Fugate, M. (2005). Extending Collaborative Processes to Early Childhood Programs in Rural Schools. Presented at the National Association of School Psychologists Convention, Atlanta, Georgia.