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Home Literacy Factors Affecting Emergent Literacy Skills

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by

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Abstract

The purpose of this study is to identify factors in the home literacy environment using the Stony Brook Family Reading Survey (SBFRS) in order to understand the extent to which these factors predict phonemic awareness and other basic reading skills, as assessed by selected subtests from the Woodcock-Johnson III (WJ III). The present study used archival data to examine the home literacy habits of a sample of parents and preschool children ages 3-5 years (range in months= 36-67) from a private and a public preschool with a combination of high- and low-income backgrounds and various ethnicities.

Using exploratory factor analyses with 165 participants, three dimensions of family reading behavior were identified from the SBFRS including Home Reading Emphasis, Adult Responsibility, and Parental Academic Expectations. Each of the SBFRS rotated factors considered together in a stepwise multiple regression analysis contributed significantly over and above age to the prediction of phonological awareness as measured by the Phonemic Awareness 3 (PA3) Cluster from the WJ III. The best order of predictors for PA3 of the WJ III, with stepwise entry, included Factor 1: Home Reading Emphasis, Factor 3: Parental Academic Expectations, and Factor 2: Adult Responsibility. One of the SBFRS rotated factors, Factor 1: Home Reading Emphasis, considered in a stepwise multiple regression analysis using age as a covariate contributed

significantly to the prediction of basic reading as measured by the Basic Reading Skills (BRS) Cluster of the WJ III [WJ III BRS=.38+.26(Factor1)]. Results demonstrate the importance of the aforementioned factors in relation to the prediction of emergent literacy. Future studies are needed to investigate parental expectations, adult responsibility for child outcomes, the impact of fathers, and the importance of dominant home language on the emergence of literacy. Revision of the SBFRS, in addition to studies that include a wider range of SES, racial/ethnic, and linguistic groups, would help to standardize the measure for future use.

CHAPTER I

Statement of the Problem

Currently, less than 40 percent of nine- and ten-year-olds in the United States do not achieve reading skills at a basic level (Lonigan, Escamilla, & Strickland, 2008; Shanahan, 2008). The number of school-aged children who do not meet the national standards for reading achievement is even higher in lower socioeconomic environments (Bracken & Fischel, 2008; Lonigan & Shanahan, 2008; Rampey, Dion, & Donahue, 2009; Rush, 1999; Stoltz & Fischel, 2003). The benefits of early identification of and intervention with children at risk for developing reading problems have been well-established in the research and have even influenced federal law (Bowman, Donovan, & Burns, 2001; Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Lonigan & Shanahan, 2008; Neuman, Copple, Bredekamp, & National Association for the Education of Young Children, 2000; Snow, Burns, & Griffin, 1998).

A vast body of literature indicates that pre-reading skills in kindergarten are correlated with reading and literacy skills in primary and secondary school (Elliott & Olliff, 2008; Scarborough, 2002; Shanahan, 2008). Although reading skills in primary school have been a focus of research for many years, the idea that literacy learning begins prior to formal schooling has been a more prominent focus only in the last several decades (Hammill, 2004; Justice, 2006; Lonigan & Shanahan, 2008). Prior to matriculating into primary school, cognitive and basic reading fundamentals, which make more advanced achievement skills possible, should be developed (Shanahan, 2008).

Emergent literacy describes the acquisition of pre-literacy skills as occurring across a developmental spectrum which begins at birth and is continually impacted by the home and socio-cultural environments (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], National Institutes of Heath [NIH], & U.S. Department of Health and Human Services [DHHS], 2000; Piasta & Wagner, 2010; Sénéchal, 2011; Sénéchal & LeFevre, 2002; Shanahan, 2008; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998, 2002). Attaining the necessary precursors to reading is one of the most vital and multifaceted tasks a preschool child must accomplish. Emergent literacy skills, which evolve prior to five years of age, strongly predict success in later literacy learning and are integral to attaining knowledge in many other arenas throughout life (Invernizzi, Landrum, Teichman, & Townsend, 2010; R. D. Phillips, Gorton, Pinciotti, & Sachdev, 2010; Sénéchal & LeFevre, 2002; Sénéchal & Young, 2008). Therefore, reading issues and associated difficulties in early childhood often continue to impact an individual throughout development and into adulthood (Whitehurst & Lonigan, 2002).

Difficulties with specific pre-reading fundamentals such as phonological awareness (manipulation of parts of words), print concepts (knowledge about the basic guidelines and rules of books and print), and letter knowledge (knowledge of letter names and sounds) in preschool-aged children are predictive of continued problems with these skills in kindergarten, as well as with subsequent reading challenges in school (Justice, 2006; Lonigan et al., 2009; Scarborough, 2002; Snow, et al., 1998; Whitehurst & Lonigan, 1998, 2002). This supports the notion that learning related to pre-reading

development during the preschool years is sustained throughout elementary school and is an integral component to later success in reading.

Pre-reading scores in early childhood that predict primary school achievement are also correlated with high school completion (Dodici, Draper, & Peterson, 2003; Storch & Whitehurst, 2001). Additionally, children who experience difficulty with reading during the school-age years often manifest behavioral problems (Lonigan & Shanahan, 2008; Shanahan, 2008). On the other hand, successful early reading practices are related to reduced criminal behavior in adolescence (Strickland & Riley-Ayers, 2006). Overall career and life success is strongly correlated with primary school reading achievement (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], et al., 2000; Storch & Whitehurst, 2001; Strickland & Riley-Ayers, 2006; Whitehurst, 2011). In general, adults who are proficient with reading are more likely to be active, contributing members of American society (Shanahan, 2008).

Children who are delayed in learning reading fundamentals prior to elementary school often continue to experience academic problems throughout their lives (Invernizzi, et al., 2010; Whitehurst & Lonigan, 2002). Therefore, addressing pre-reading skills early and reinforcing reading-related strengths of preschoolers may be paramount to amplifying a child's success in learning (Bowman, et al., 2001; Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Lonigan, Schatschneider, & Westberg, 2008a; Neuman, et al., 2000; Scarborough, 2002; Snow & Oh, 2011; Whitehurst & Lonigan, 2002). Unfortunately, children often do not receive assessment or intervention for reading problems until primary school (Justice, 2006; Snow, et al., 1998). Moreover, assessments of reading skills often focus on pre-reading

and conventional reading skills and not the components of home literacy practices which influence the development of these skills, since they are more difficult to study.

Not all children begin kindergarten with the same level of preparation and motivation for reading, because their home and school literacy environments vary greatly (Burgess & Lonigan, 1998; Lonigan, Escamilla, et al., 2008; R. D. Phillips, et al., 2010; Shanahan, 2008; Snow, et al., 1998; Stobbart & Alant, 2008; Storch & Whitehurst, 2001). The home literacy environment and its components are essential to investigate when researching the development of literacy skills, since the home is typically the first place in which a child is exposed to language and has the chance to observe, to discover, and to engage in literacy-related activities (DeBaryshe, Binder, & Buell, 2000; Green, Lilly, & Barrett, 2002; Lonigan, Escamilla, et al., 2008; Lonigan & Shanahan, 2008; Lonigan, Shanahan, & Cunningham, 2008; Weigel, Martin, & Bennett, 2005).

Current research supports the notion that caregivers have the opportunity to provide sufficient and essential literacy support to children prior to starting kindergarten, whether they attend a center-based program or not (Shanahan, 2008; Skibbe, Justice, Zucker, & McGinty, 2008). Additionally, the literacy-related social experiences that children take with them from their homes and preschools in part determine their reading achievement in primary school (Lonigan, Escamilla, et al., 2008; Lonigan & Shanahan, 2008; Sénéchal, 2011; Sénéchal & LeFevre, 2002; Storch & Whitehurst, 2001; Weigel, et al., 2005).

Parent-child interactions are one of the many aspects of the home literacy environment that influence child development (Crain-Thoreson, Dahlin, & Powell, 2001; Curenton, Craig, & Flanigan, 2008; Sénéchal & LeFevre, 2001; Storch & Whitehurst,

2001). For example, children who experience engaging, child-directed speech from a caregiver often develop more sophisticated vocabularies in addition to more efficient information processing, which lead to greater cognitive gains throughout life (Lonigan, Shanahan, et al., 2008; Whitehurst & Lonigan, 1998). Studies that directly examine literacy behavior in the home tend to be costly and time consuming and often employ smaller sample sizes which are not as easily generalized (Dodici, et al., 2003). As a result, the use of less resource intensive studies and assessments of home literacy practices could be beneficial for researchers.

The development of oral language skills has been a major focus of previous research relating to home literacy environments (Weigel, et al., 2005). While oral language is important, further research is needed to identify relationships among the myriad of other foundational reading skills and specific aspects of the home literacy environment (Whitehurst & Lonigan, 1998, 2002).

Many studies focus on the potential influence of parental literacy activities on oral language despite the many mediating factors and the developmental trajectory of this construct that make oral language complicated to study. The National Early Literacy Panel (NELP) conducted a large-scale meta-analysis of early literacy research to identify predictors of later reading achievement and to determine parenting practices, instructional procedures, and intervention techniques that promote literacy growth in early childhood (Lonigan & Shanahan, 2008; Shanahan & Lonigan, 2010). Oral language was used as an outcome measure in all 32 studies relating parent and home programs to later reading outcomes (Lonigan, Escamilla, et al., 2008). However, very few studies used other pre-literacy skills as outcome variables, so none of those studies were

included in the analysis due to an insufficient amount of data (Lonigan, Escamilla, et al., 2008; Shanahan & Lonigan, 2010). Since phonemic awareness and other decoding skills are strong and stable predictors of later reading success, further research is needed to elucidate the relationship between home literacy practices and these precursor literacy skills.

Overall, effective learning in early childhood has been related to enhanced academic performance, fewer grade retentions, increased social and emotional well-being, and a decreased likelihood of criminal behavior in adolescence. One of the keystones to improving literacy rates is to understand the way in which literacy emerges in children (Biemiller, 2007; Snow, et al., 1998). More specifically, understanding the impact of the specific components of the home literacy environment on the development of particular pre-reading skills can empower parents, teachers, researchers, and clinicians collectively to better the children of the future.

This comprehensive literature review will describe the evolution of language and reading acquisition theories in relation to the current theory of developing literacy in the preschool population. Concepts of emergent literacy will be enumerated in order to examine thoroughly the influences of the home literacy environment on specific fundamental reading skills. Additionally, a review of assessments related to identifying components of the home literacy environment will be discussed.

CHAPTER II

Review of the Literature

Overview of Language and Literacy Acquisition Models

Caregivers and the home literacy environment impact language acquisition, which according to recent research, progresses prior to, as well as concurrently with, literacy acquisition (Fernald & Weisleder, 2011). However, the extent to which caregivers and the home literacy environment influence early language and literacy acquisition has been debated throughout the previous century (Casbergue & McGee, 2011). Theories of acquisition of these skills have continued to evolve with the overall trends in science as the nature of cognition, behavior, and development are better understood. The following review of language and literacy learning model evolution will illuminate the significance of current concepts of emergent literacy.

Neural Ripening

According to Crawford (1995), in the 1920's and 1930's reading acquisition was viewed as a biological, maturational process which occurred as a function of neurons ripening or developing. According to the neural ripening theory, children were not able to begin to learn how to read until acquiring a mental age of six, which was determined by administering standardized tests. It was also assumed that learning to read prior to attaining an appropriate mental age of six could be cognitively harmful. Caregivers and social environments were not considered an integral influence within this theory of reading development. Although concepts of neurobiology continue to be integrated into the understanding of literacy acquisition, the neural ripening theory was not well-

supported by the literature (Cattell, 2004; Crawford, 1995; Hauser, Chomsky, & Fitch, 2002).

From the 1930's through the 1960's, the view continued to shift from highlighting nature to emphasizing nurture and environmental influences as essential to language and reading acquisition (Cattell, 2004; Crawford, 1995). Leading theorists such as Jean Piaget, Lev Vygotsky, Burrhus Frederic Skinner**,** and Noam Chomsky revolutionized their individual fields of study by propounding ideas about the development of cognition, language, and learning. Their theories and research transcended the boundaries of their specializations and have continued to inform the conceptualization of literacy and language acquisition over time (Casbergue & McGee, 2011; Cattell, 2004; Chomsky, 1959, 2000; Hauser, et al., 2002; Skinner, 1986; Stemmer, 1990).

Behavioral

B. F. Skinner, a foundational player within behavioral psychology, espoused his theory of language development in his well-known book, *Verbal Behavior* (1957). According to a critical review of Skinner's book written by Noam Chomsky (1959), "…the goal of the book (was) to provide a way to predict and control verbal behavior by observing and manipulating the physical environment of the speaker" (p. 1). Skinner believed that exclusively through the frequency, deprivation, and temporal arrangement of reinforcement delivered within a child's environment, language and literacy emerges (Casbergue & McGee, 2011; Cattell, 2004; Chomsky, 1959; Stemmer, 1990). Instead of linguistic development relying on innate characteristics of each child, the home environment was now considered foundational to developing language. However, acquiring the elements of language behaviorally was thought to be a complex process.

As a result, Skinner, along with other behaviorists and researchers in the 1960's and 1970's, believed that children were not ready to learn how to read or to develop literacy skills until they were at least six years old (Casbergue & McGee, 2011).

Linguistic

Noam Chomsky strongly opposed the behaviorist approach of experimentation as well as the general conceptualization of language development. As a linguist, philosopher, and cognitive scientist, he agreed with Skinner that language development can be influenced by the environment. However, he asserted that children make a complex cognitive contribution to understanding and to developing language above and beyond the environmental input. His overall assertion was that all children are born with an innate sense of grammatical properties which underlie human language. When Chomsky initially proposed his theories about language, he did not believe that research methods were sophisticated enough to measure accurately all of the external factors that might influence language emergence, particularly parental language in the home (Casbergue & McGee, 2011; Cattell, 2004; Chomsky, 1959, 2000; Fernald & Weisleder, 2011). In response to Chomsky's ideas, research began to focus on how parental use of child-directed language influences linguistic development (Fernald & Weisleder, 2011). Current research does not support either Skinner's behavioral theory or Chomsky's linguistic theory in isolation. Nonetheless, ideas about innate versus environmental influences shaped and continue to inform more recent theories regarding the development of language and literacy (Cairney, 2003; Casbergue & McGee, 2011; Cattell, 2004).

Constructivist

Vygotsky and Piaget shaped fundamental ideas about child development and cognition as well as the emergence of reading behaviors and of verbal communication. Vygotsky's constructivist approach to the explanation of learning and cognitive development emphasized that social learning leads to individual child development (Vygotsky, 1978). However, he believed that learning and development were intertwined. Vygotsky posited that children acquire knowledge, including language and literacy, by interacting with an adult or more advanced peer who provides appropriate scaffolding towards accomplishing a task (Vygotsky, 1978). An adult or more advanced peer must be present to guide the learning process, which progresses sequentially based on children's stepwise, successive approximations of linguistic development. Additionally, he believed that children eventually internalize the problem-solving language of the adult or peer, which leads to metacognition about learning processes as well as increased language skills. According to Vygotsky, neonates do not possess an innate construct of language. Instead, the child interacts with the community and then actively constructs language knowledge within the natural process of extracting patterns and representations of the world (Casbergue & McGee, 2011; Vygotsky, 1967, 1978). In summary, a child's literacy and language learning experiences were thought to be determined by the order in which each skill is individually acquired, and someone is required formally to teach and to direct the process.

Developmental

Piaget agreed with Vygotsky that children play an active role in constructing their language and literacy skill development through discovery and interaction with the

environment. However, he clarified that the progression of reading skills is primarily based on where children are within the developmental stages that he had identified. In other words, within the schema of developmental stages, children interact with their environments to construct knowledge and skills. Therefore, in Piaget's opinion, development must precede learning. Vygotsky and Piaget both argued that learning, including literacy acquisition, occurs in a fixed order. The developmental researchers believed the order was based on individual sequences of development, while the constructivists believed that the order was based on the unique progression of attaining task-specific skills (Casbergue & McGee, 2011; Cattell, 2004; Vygotsky, 1978). Overall, both schools of thought asserted that learning language and literacy is driven by innate characteristics of each child in interaction with the environment. However, the uniqueness of each child's learning experience is presumed to be limited by the idea that the skills progress in a specified, somewhat universal order heavily influenced and directed by adults and development. Although current research calls into question a specific, universal, pre-determined order of literacy skill attainment beginning at a particular age, these foundational theories continue to inform the current views of literacy acquisition (Casbergue & McGee, 2011; Furnes & Samuelsson, 2011).

Developmental Reading Readiness

Aspects of Skinner's, Chomsky's, Piaget's, and Vygotsy's theories of language development and cognition began to be integrated and unified within the developmental reading readiness approach (Casbergue & McGee, 2011). Many recent studies about reading acquisition support the idea that learning foundational reading and writing skills begins prior to kindergarten. The literature further demonstrates that learning

fundamental literacy skills before age six is, in fact, beneficial (Hauser, et al., 2002; Justice, 2006; Lonigan, Burgess, & Anthony, 2000; Scarborough & Dobrich, 1994; Skibbe, et al., 2008). Studies that suggest that children make greater gains in literacy learning at six years old and older, as opposed to earlier in life, are likely confounded due to the increased instructional focus on literacy in first grade (Shanahan, 2007).

The reading readiness perspective incorporates the idea that some learning related to literacy begins prior to kindergarten. Developmental and constructivist theorists conceptualize language and literacy development as occurring in stages. Similarly, the reading readiness theory purports that a clear distinction exists between the pre-reading phase and the conventional reading phase. In essence, children must attain a specific set of skills before they are able to benefit from conventional reading education (Crawford, 1995; Justice, 2006; Whitehurst & Lonigan, 1998). Data supporting a boundary between a pre-reading phase and formal schooling are limited (Hauser, et al., 2002; Justice, 2006; Lonigan, et al., 2000; Scarborough & Dobrich, 1994; Skibbe, et al., 2008).

The reading readiness approach acknowledges that children evolve within their social environments (Crawford, 1995; Lonigan, et al., 2000). However, according to this view and similar to the constructivist view, children can only acquire literacy by being explicitly taught using a highly structured, formal, systematic, scientific process. Specific skills are considered separate from one another and thought to progress in all children in the same particular order (Crawford, 1995). This rather traditional view, which is still held by some educators and researchers, dismisses the importance of learning underlying fundamentals of reading and writing within an informal, social context which is naturally heavily reliant on verbal and written language. On the contrary, a growing body of

current literacy acquisition research highlights the importance of the informal learning experience which occurs within a social context (Justice, 2006; Lonigan & Shanahan, 2008; Shanahan, 2007).

Emergent Literacy

The emergent literacy paradigm is an even more unified conceptualization of the mechanisms underlying literacy development based on previous theories of language acquisition, learning, and cognition. Similar to the behavioral, developmental, and reading readiness approaches, the idea of emergent literacy embraces individual developmental and environmental differences and emphasizes the importance of literacy growth in early childhood. Conversely, this theory uniquely highlights the interactive nature of literacy skills as they are emerging within a developmental continuum from birth, as opposed to pre-reading skills' occurring completely or not at all and then culminating by the time formal education begins (Lonigan, et al., 2000; Whitehurst & Lonigan, 2002). For example, children display reading- and writing-related behaviors, including scribbling and pretending to read, prior to learning to read in the more conventional sense (Justice, 2006). Emergent literacy experts believe that pre-reading behavior beginning in infancy is foundational to the continuous building of reading skills (Skibbe, et al., 2008; Whitehurst & Lonigan, 1998).

Emergent literacy learning integrates the constructionist conceptualization of learning which emphasizes continuous development based on individual attainment of skill sets. However, within the context of emergent literacy, the order of skill development is not completely predetermined. In fact, the boundaries are often blurred between the fundamental, precursory skills which frequently portend the emergence of

literacy, and the more conventional reading skills (Shanahan, 2007). The skills are continuously developing interactively (Casbergue & McGee, 2011; Whitehurst & Lonigan, 1998, 2002). This view also differs from the constructionist theories, which imply the necessity of formal teaching. In addition to formal teaching, learning is thought to occur readily in the context of informal social environments (Casbergue & McGee, 2011; Justice, 2006; Lonigan, Escamilla, et al., 2008; Whitehurst & Lonigan, 1998).

Emergent Literacy Overview

Emergent Literacy Defined

Emergent literacy is an integrative perspective of literacy acquisition which can help parents, teachers, researchers, and clinicians to evaluate, to identify, and to influence the multidimensional factors that impact the development of reading (Reese, Garnier, Gallimore, & Goldenberg, 2000; Snow & Oh, 2011). The phrase "emergent literacy" was initially coined by Marie Clay in 1966 (Whitehurst & Lonigan, 1998). However, Teale and Sulzby (1986) heralded a more detailed and formal explanation of the term in their book *Emergent Literacy: Writing and Reading* (Whitehurst & Lonigan, 1998). Emergent literacy is currently defined as the conglomeration of attitudes, behaviors, knowledges, and skills which are antecedents to developing more complex functions that are the focus of primary and secondary schooling (Lonigan & Shanahan, 2008; Payne, Whitehurst, & Angell, 1994; Shanahan & Lonigan, 2010; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998, 2002; Zill & Resnick, 2006). The environments that foster these growths are also considered an integral part of emergent literacy development (Sénéchal & LeFevre, 2001; Sénéchal & LeFevre, 2002; Zill & Resnick, 2006). More specifically, according to Whitehurst and Lonigan, "…reading, writing, and oral language

develop concurrently and interdependently from an early age from children's exposure to interactions in the social contexts in which literacy is a component, and in the absence of formal instruction" (p. 849).

The emergent literacy paradigm emphasizes the importance and the legitimacy of literacy skill growth from infancy through the preschool period which then continues as a dynamic developmental progression over time (Bracken & Fischel, 2008; Justice, 2006; Whitehurst & Lonigan, 1998). Emergent literacy acquisition begins just after birth and is strongly predictive of, and interacts with, later literacy skills (Justice, 2006; Lonigan & Shanahan, 2008; Whitehurst & Lonigan, 1998, 2002).

Emergent literacy environment. The concept of emergent literacy includes and embraces the importance of the social interaction component within the reading environment (Justice, 2006; Lonigan & Shanahan, 2008; Stobbart & Alant, 2008; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998). In other words, literacy develops within the context of numerous direct and indirect influences, such as day care, preschool, and the home (Skibbe, et al., 2008; Snow, et al., 1998; Storch & Whitehurst, 2001; Weigel, et al., 2005). These social experiences, which shape reading skills and impact literacy development, are identified by Whitehurst and Lonigan (1998) as the *emergent literacy environment*.

Home literacy environment. Since most children under five years old are at home with a caregiver much of the time, parent-child reading interactions are linked to the development of particular precursor literacy skills (Dodici, et al., 2003; Storch & Whitehurst, 2001). As a result, a specific emphasis has been placed on familial and parental interactions within the emergent literacy environment. The phrase *home literacy*

environment is widely used to isolate and to investigate the factors within the home social environment which contribute to the growth of pre-literacy skills (Bracken & Fischel, 2008; Lonigan & Shanahan, 2008; Snow, et al., 1998; Whitehurst & Lonigan, 1998).

Children continuously become more adept in writing, reading, and oral language within the home literacy environment. As children are exposed to written language, they begin to understand that the letters are symbolic and have meaning that is related to oral language. Children develop vocabulary and begin to comprehend aurally presented language though exposure to verbal communication of a caregiver and other influential adults or children (Whitehurst & Lonigan, 1998, 2002). Specific early literacy skills have been identified as being contributory to literacy preparation and are correlated with later literacy development (Justice, 2006; Lonigan, Escamilla, et al., 2008; Lonigan, Schatschneider, et al., 2008a).

Conventional literacy skills. Although the emergent literacy theory of reading acquisition underscores a continuous interactive nature of the emergence of literacy skills, a distinction must be made to delineate best between precursor skills and more advanced reading skills. According to Lonigan and Shanahan (2008), the term *conventional literacy skills* is used, "…to distinguish between these aspects of literacy that are clearly the focus of the reading, writing, and spelling instruction provided to elementary and secondary students and those earlier-developing precursor skills that may not themselves be used within literacy practice but that may presage the development of conventional literacy skills" (p. vii). Reading comprehension, spelling, writing, oral reading fluency, and decoding are examples of more advanced skills which are the focus of pedagogy of school-aged children (Lonigan & Shanahan, 2008). These skills are viewed as essential components of literacy which are taught in primary and secondary schools when children can more

fluidly use a system which is rule-governed based on alphabetic principles (Justice, 2006; Lonigan & Shanahan, 2008; Scarborough, 2002; Whitehurst & Lonigan, 1998).

Acquisition of pre-literacy skills. The order of acquiring specific pre-literacy skills is overlapping and can occur simultaneously. Each individual precursor skill might be acquired in a similar order and may initially occur independent from other precursor skills. Additionally, Shanahan (2007) states that "…while growth in [emergent literacy skills more often] stimulates conventional literacy learning, it is also true that there is a reciprocal relationship between literacy and these skills" (p. 4). Ultimately, the individual emergent and conventional literacy skills must converge and coordinate in order for a child to read, to write, and to communicate successfully (Scarborough, 2002; Shanahan, 2007; Whitehurst & Lonigan, 2002).

Inside-out and Outside-in Skills

Due to the complex interactions between specific precursor skills, it is difficult to create a simple, inclusive model of literacy acquisition. However, Whitehurst and Lonigan (1998, 2002) broadly conceptualized literacy acquisition to include emergent and conventional literacy skills occurring within two interdependent domains referred to as *inside-out* and *outside-in* processes (Storch & Whitehurst, 2001; Zill & Resnick, 2006). Together, the domains predict successful long-term learning (Hammer, Scarpino, & Davison, 2011; Lonigan, Schatschneider, et al., 2008a; Sénéchal & LeFevre, 2002; Whitehurst & Lonigan, 1998, 2002).

Outside-in processes integrate contextual and conceptual information related to what children read or write that facilitates a better understanding of the written word (Hammer, et al., 2011; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998).

Included in this domain are processes such as building vocabulary, developing decontexualized language (language used in works such as narratives to explain new information to an unfamiliar audience), understanding concepts of print (knowledge about the basic guidelines and rules of books and print), and pretending to read (Whitehurst & Lonigan, 1998, 2002). These processes aid in the comprehension and the acquisition of a contextual meaning derived from the printed language (Whitehurst & Lonigan, 2002). Moreover, the skills embody sources of information which exist outside of the physical words on a page (Hammer, et al., 2011; Snow & Oh, 2011; Whitehurst & Lonigan, 1998, 2002). For example, beginning readers attempt to read by verbalizing the individual sounds in a word. They are better able to decode the letters using the contextual clues related to having a semantic representation of the word in their repertoires. These skills are often developed and promoted within the home literacy environment (Dickinson, McCabe, Anastasopoulos, Peisner-Feinberg, & Poe, 2003; Whitehurst & Lonigan, 2002). Outside-in skills such as vocabulary strongly predict later reading skills (Lonigan, Schatschneider, et al., 2008a; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998).

In contrast, inside-out processes involve children's having knowledge, or metacognition, about linguistic rules which help to decode printed words and orally generated sounds. The information gained from these processes exists within the actual writing on a page (Storch & Whitehurst, 2001; Whitehurst & Lonigan, 2002). Successful reading requires identification and awareness of print units as well as linguistic units, including names of letters (graphemes), small sound units (phonemes), words, and sentences (Lonigan, et al., 2009; Whitehurst & Lonigan, 2002). If children can identify a

letter by name, it becomes easier for them to match a sound to that letter. Fundamental skills such as alphabet knowledge impact phonological awareness, or the ability to manipulate parts of words (Lonigan, et al., 2009). Phoneme-grapheme correspondence is a more advanced skill that involves awareness that graphemes translate into phonemes and vice versa. These skills affect the overall understanding that words translate into sounds when reading, and, alternatively, that sounds translate into letters and words when writing. (Hammer, et al., 2011; Snow & Oh, 2011; Whitehurst & Lonigan, 1998, 2002). Inside-out skills, such as phonological processing and print knowledge, strongly predict later reading skills (Lonigan, Schatschneider, et al., 2008a; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998). Inside-out skills including awareness of print, alphabet knowledge, and phonological processing are considered to be code-related since they help children to crack the alphabetic code relating phonemes and graphemes (Storch & Whitehurst, 2002; Whitehurst, 2011; Whitehurst & Lonigan, 1998).

The inside-out and outside-in skills in children develop concurrently and independently as a function of genetic proclivity as well as the following environmental factors: parental education level and socioeconomic status (SES), exposure to literacy-related activities at home, and emergent literacy programs in school (Hammill, 2004; Reese, et al., 2000). The following risk factors may interfere with the development of these processes: parental history of learning difficulties, chronic otitis media during early childhood, hearing difficulties, attentional problems, speech delays, developmental disabilities, and lack of early literacy exposure (Justice, 2005, 2006; Lyon, 1999; Snow, et al., 1998).

Whitehurst and Lonigan (1998) are two of many investigators who have dedicated their research to identifying, defining, and understanding the tenets of emergent literacy in order to improve education and to maximize home literacy interactions. Whitehurst and Lonigan began to outline a structure that can be used by other experts to view and to study reading and writing precursor skills in relation to conventional literacy skills. Their work related to outside-in and inside-out domains was groundbreaking, and it helped to shape the course of the literature in the field. Despite their impact on the field, further studies were needed with larger sample sizes based on more comprehensive, data-driven designs (Hammill, 2004).

Influential Large-Scale Literacy Studies

Throughout the last several decades, a number of researchers have focused on delineating elements of early reading that predict later reading as a part of the *emergent literacy movement* (Lonigan, Schatschneider, et al., 2008a; Whitehurst & Lonigan, 1998). The phrase, *emergent literacy movement*, is used to describe educational and social policy advocacy aimed at enriching the pre-reading environment with appropriate reading-related social interactions (Whitehurst & Lonigan, 1998). The concept emphasizes the importance of attaining generalizable early literacy information that can be influential at a political level. In 1997, the U.S. Congress addressed a need to improve national reading achievement (Lonigan & Shanahan, 2008). A combined report was issued by the National Association for the Education of Young Children (NAEYC) and the International Reading Association (IRA) entitled, *Learning to Read and Write: Developmentally Appropriate Practices for Young Children* (1998). This document identified emergent literacy as a cornerstone for successful academic achievement with

emphasis on helping teachers to understand reading acquisition through early development. Government entities such as the National Institute of Child Health and Human Development (NICHD) funded several influential studies in response to the need for more comprehensive information related to the development of and instruction in literacy (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], et al., 2000; Hammill, 2004; Shanahan, 2008).

One of the NICHD funded studies was a report from the National Research Counsel (NRC) written by Snow, Burns, and Griffin (1998) entitled, *Preventing Reading Difficulties in Young Children.* This document helped to define the broader concepts within emergent literacy (Lonigan, Schatschneider, et al., 2008a). The book provided a narrative description of factors that are involved in the development of literacy based on expert consensus within previous studies. Specifically, in order to prevent later reading problems, intervention was recommended for deficits in alphabet knowledge, oral language, and phonological awareness (Lonigan, Schatschneider, & Westberg, 2008b). Barriers to literacy learning included the application and understanding of alphabetic principals, lack of motivation to read, and difficulty applying verbal language comprehension skills to reading comprehension. Home and school literacy environments were also emphasized as playing a critical role in the development of reading and writing skills (Snow, et al., 1998). While the information was valuable, the review of literature was neither comprehensive nor specific to emergent literacy (Hammill, 2004; Lonigan, Schatschneider, et al., 2008a). The NRC produced further reports including *From*

Neurons to Neighborhoods (2000) and *Eager to Learn* (2001) which highlighted the significance of pre-reading intervention and began to delineate the components of emergent literacy.

The response to Congress's request for research was also met with an in-depth meta-analysis that investigated teaching strategies related to increasing reading and writing successes. Meta-analyses use a systematic statistical procedure to combine the results of many well-designed studies, therefore producing more replicable, powerful, and valid results than any single study (Hammill, 2004; Schatschneider, Westberg, & Shanahan, 2008; Shanahan & Lonigan, 2010). The NICHD created the National Reading Panel (NRP) to evaluate the effectiveness of teaching methods used for reading instruction (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Lonigan & Shanahan, 2008). The NRP's report, *Teaching Children to Read* (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000) was a meta-analysis of 450 studies that thoroughly delineated issues relating to reading pedagogy and outcomes of children in primary and secondary school. The synthesis included literature related to essential skills and to early environmental interactions integral to reading acquisition and interventions (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Lonigan & Shanahan, 2008). Although it was not fully comprehensive because research on preschoolers was not included, the document reviewed many vital components of reading education.

The key concepts identified in *Teaching Children to Read* included instruction of vocabulary, reading comprehension, oral reading fluency, phonemic awareness, and

phonics, in addition to the education of teachers (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Shanahan & Lonigan, 2010). These main components are related to the early acquisition of alphabet knowledge, concepts of print, and oral language. This document continues to guide educational policies in the United States schools, including legislation which encourages academic readiness prior to entering formal schooling (Hammill, 2004; Lonigan & Shanahan, 2008). Future research recommendations included a need for further comprehensive studies regarding factors that contribute to literacy acquisition across the developmental spectrum, such as home literacy practices (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000).

Hammill (2004) synthesized three previous meta-analyses to delineate early literacy skills which relate to reading. The previous analyses used in this research were conducted by Hammill and McNott (1981), Scarborough (1998), and Swanson, Trainin, Necoechea, and Hammill (2003). The 452 studies that were included in Hammill's (2004) meta-analysis investigated concurrent and longitudinal relationships among types of reading skills in the prediction of achievement. The studies included were initially completed between 1950 and 2002. Although the age ranges of the participants were not indicated, the article focused on children from kindergarten through grade school within the discussion of implications The literacy skills were organized into the following categories for the analyses: reading (recognition and comprehension of printed text), letters (identification of alphabetic symbols and their associated sounds), rapid naming (quickly naming familiar shapes and symbols), spoken language (oral language), phonological awareness, written language, written conventions (skills such as spelling

and punctuation), visual and perceptual skills, memory, and intelligence. The meta-analyses consistently determined that alphabet knowledge and conventions of writing best predicted reading (Hammill, 2004). The predictors which moderately correlated with reading included phonological awareness, rapid naming, written language, intelligence, and memory. Print specific skills better predicted reading when compared to perceptual-motor skills and spoken language. This report agreed with other major investigations of early literacy which emphasized later reading success's being associated with alphabet knowledge, phonological awareness, spelling, print concepts, reading comprehension, and oral reading.

The National Early Literacy Panel (NELP) was created in 2002 to synthesize research related to early literacy in 0- to 5-year-old children (Shanahan, 2008). Under the sponsorship of NICHD, the National Institute for Literacy (NIFL), the U.S. Department of Education, and Head Start within the U.S. Department of Health and Human Services, NELP consulted with and used meta-analytic methodology similar to that of the NRP's report, *Teaching Children to Read* (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Lonigan & Shanahan, 2008). NELP selected previously published emergent literacy studies and reviewed them systematically. The meta-analysis aimed to operationalize the components of emergent literacy. One of goals of the large-scale research project was to identify effective, age-appropriate practices and interventions that support literacy development in children from birth through age 5 at home and school. The information attained from the studies was to be disseminated to enhance educational policy as well as to support teachers, caregivers,

and parents in understanding and improving language and literacy development (Lonigan, Schatschneider, et al., 2008a; Shanahan, 2008).

Articles for the meta-analysis were collected methodically using PsycINFO and Education Resources Information Center (ERIC) databases. Additionally, well-known early childhood research journals were manually searched, reference lists of previous literature reviews were examined, and emergent literacy authorities were consulted. Selection criteria related to the determined research questions resulted in the use of 500 of the over 8,000 related articles which were reviewed (Lonigan & Shanahan, 2008; Schatschneider, et al., 2008). The studies were included if they related to the research questions and met a number of criteria. Articles were required to be written in English and published in a peer-reviewed journals. The articles selected discussed only alphabetic languages such as English. The children examined were between birth and 5 years of age or in kindergarten. Finally, the articles were limited to empirical research with quantitative data about children representative of a normal range of functioning in a typical classroom (Schatschneider, et al., 2008). The studies involved underwent an extensive coding procedure. The articles were excluded and considered unusable if, for example, no correlations were reported, the research was qualitative, or it was theoretical. Also, if the content was irrelevant (i.e., it did not include outcome variables for reading or writing) or the population investigated was out of the specified range, the article was excluded from the exploration (Lonigan, Schatschneider, et al., 2008a). Out of 7,313 articles screened, approximately 500 were used in the final meta-analysis (Lonigan & Shanahan, 2008).

According to Schatschneider, et al. (2008), NELP posed the following several questions to determine parenting practices, instructional procedures, and intervention techniques that promote literacy growth in early childhood:

1. What are the skills and abilities of young children (age birth through five years or kindergarten) that predict later reading, writing, or spelling outcomes?
2. Which programs, interventions, and other instructional approaches or procedures have contributed to or inhibited gains in children's skills that are linked to later outcomes in reading, writing, or spelling?
3. What environments and settings have contributed to or inhibited gains in children's skills and abilities that are linked to later outcomes in reading, writing, or spelling?
4. What child characteristics have contributed to or inhibited gains in children's skills that are linked to later outcomes in reading, writing, or spelling? (p. 2)

The NRP determined that the first research question needed to be answered prior to answering the remainder of the questions. Specifically, it was important to determine and to define emergent literacy skills clearly in order to investigate how said skills are impacted by environments, interventions, and personal characteristics. To complete this task, the committee needed to identify which early skills predict later spelling, reading, and writing skills (Schatschneider, et al., 2008). To adhere to the definition, the early literacy skills were required to be present prior to the conventional literacy skill, and

needed to be predictive of a conventional skill. Based on previous literature, conventional literacy skills were defined by dividing them into receptive and expressive domains (Lonigan, Schatschneider, et al., 2008a; Snow, et al., 1998; Whitehurst & Lonigan, 1998). The receptive conventional literacy skills that were predicted included decoding and reading comprehension. The expressive conventional literacy skill predicted by the identified precursor skills was spelling (Lonigan, Schatschneider, et al., 2008a).

Approximately 300 of the total articles were used for question one to identify and to describe the emergent literacy skills in children from birth to 5 years that predict later literacy (Schatschneider, et al., 2008). Question one was analyzed by combining data taken from similar measures collected from a number of studies. Essentially, effect sizes were computed using independent groups from the initial study. Then a weighted average correlation of the individual foundational literacy skills was calculated (Shanahan & Lonigan, 2010). The results yielded a total of 11 variables which predicted later literacy success for both kindergarteners and preschoolers. According to Lonigan and Shanahan (2008), when variables such as IQ and SES were controlled for, the following six predictor variables maintained their medium to large predictive relationships with later literacy achievement measures:

- Alphabet knowledge (AK): Knowledge of the names and sounds associated with printed letters.
- Phonological awareness (PA): The ability to detect, manipulate, or analyze the auditory aspects of spoken language (including the ability to

distinguish or segment words, syllables, or phonemes), independent of meaning).

- Rapid automatic naming (RAN) of letters or digits: The ability rapidly to name a sequence of random letters or digits.
- RAN of objects or colors: The ability rapidly to name a sequence of repeating random sets of pictures of objects (i.e., “car”, “tree”, “house”, “man”) or colors.
- Writing or name writing: The ability to write letters in isolation on request or to write one’s own name.
- Phonological memory: The ability to remember spoken information for a short period of time. (p. 3)

An additional five variables demonstrated moderate correlations with at least one later literacy achievement measure. However, they either did not maintain predictive power when contextual variables were controlled, or they had not yet been evaluated in the same way as they were in this study. According to Lonigan and Shanahan (2008), the additional variables are as follows:

- Concepts about print: Knowledge of print conventions (e.g., left-right, front-back) and concepts (book cover, author, text).
- Print knowledge: A combination of AK, concepts about print, and early decoding.
- Reading readiness: Usually a combination of AK, concepts about print, vocabulary, memory, and PA.

- Oral language: The ability to pronounce or comprehend spoken language, including vocabulary and grammar.
- Visual processing: The ability to match or discriminate visually presented symbols. (p. 4)

The 11 aforementioned pre-literacy skill variables were not the only significant predictors of conventional literacy skills. In fact, the meta-analysis determined that conventional literacy skills assessed during preschool and kindergarten were found to have strong, predictive relationships with the same conventional literacy skills later in development (Lonigan, Schatschneider, et al., 2008a). In other words, early success on measures of decoding, reading comprehension, and spelling strongly predicted later success in these areas (Lonigan, et al., 2009). This phenomenon supports the idea that although pre-literacy skills stimulate growth in conventional literacy skills, there is often overlap and reciprocity between pre-literacy and conventional literacy skill development (Shanahan, 2007; Shanahan & Lonigan, 2010).

The authors delineated some limitations regarding the NELP study. As is the case with all meta-analyses, the research value is dependent on the quality of the studies included. This meta-analysis was compromised slightly because many of the initial studies did not include sufficient demographic information about the children, their families, and their environments in relation to early literacy instruction to account for those confounding variables adequately (Lonigan & Shanahan, 2008; Shanahan & Lonigan, 2010). Thus, this meta-analysis offers suggestions rather than concrete conclusions about intervention effectiveness (Lonigan & Shanahan, 2008). Additionally, this review only used published research. Since there is a propensity to publish only

studies with significant findings, perhaps the findings or effect sizes would have been altered slightly if alternative resources were included (Lonigan & Shanahan, 2008; Shanahan & Lonigan, 2010). Despite these limitations, this document is an extremely informative and comprehensive foundational body of research identifying the strongest pre-literacy predictors of and instructional methods for later reading achievement.

Components of Emergent Literacy

A large number of studies, including the NELP meta-analysis, helped researchers to identify and to operationalize the main tenets of emergent literacy. The following section will provide a more detailed description of specified foundational literacy skills.

Oral Language

Oral language refers to a child's vocabulary repertoire as well as the facility to produce and/or to understand spoken language, including syntax and semantics (Lonigan, 2006; Schatschneider, et al., 2008). Knowledge of vocabulary represents a simplistic aspect of oral language. More complex manifestations of oral language include grammar, the ability to define words, and listening comprehension (Lonigan, 2006; Lonigan, Schatschneider, et al., 2008a). The foundations of literacy learning begin with exposure to oral language starting as early as birth (Payne, et al., 1994; Scarborough & Dobrich, 1994). Direct parental involvement in reading activities, such as number of books in the home and shared reading, contribute to the development of vocabulary (Fernald & Weisleder, 2011; Payne, et al., 1994; Sénéchal, 2011; Storch & Whitehurst, 2001). Additionally, child-directed caregiver interactions aid children in building more sophisticated vocabularies in addition to more efficient information processing, both of

which lead to greater cognitive gains throughout life (Sénéchal, 2011; Weigel, et al., 2005; Whitehurst & Lonigan, 1998).

Oral language deficits in early childhood have been associated with later reading problems, particularly after fourth grade (Fernald & Weisleder, 2011; Roth, Speece, Cooper, & de la Paz, 1996; Scarborough & Dobrich, 1994). Biemiller (2007) explained that children with insufficient vocabularies are also at a higher risk of experiencing difficulty in high school and college. Research indicates that early intervention with oral language, print knowledge, and phonological awareness is instrumental in preventing later word-decoding problems (Snow, et al., 1998; Townsend & Konold, 2010; Whitehurst & Lonigan, 2002).

Fluid reading requires the coordination and the eventual integration of several foundational literacy skills. For example, children must identify letters, translate the letters into sounds, and identify and interpret words (Shanahan, 2007; Shanahan & Lonigan, 2010; Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998, 2002). Though this is a general order of literacy skill acquisition, there are many pathways to achieving successful reading and writing (Shanahan, 2007). Pre-literacy skills can develop independently and can overlap the development of other skills. They can also influence the development of one another (Shanahan, 2007; Shanahan & Lonigan, 2010).

Phonological awareness includes the manipulation of oral language sound structure. Consequently, longitudinal and correlational studies have associated vocabulary skills with the development of code-related skills such as phonemic awareness (Burgess & Lonigan, 1998; Cooper, Roth, Speece, & Schatschneider, 2002; Lonigan, et al., 2000). Cooper, et al. (2002) conducted a longitudinal study to determine

the relationship between oral language skills and the development of phonological awareness of 52 children in kindergarten through second grade. Within this sample, there was a subgroup of non-readers identified in kindergarten as determined by a cut-off score on the Woodcock-Johnson III, Tests of Achievement, which included the Word Attack and the Letter-Word Identification subtests.

Cooper, et al. (2002) included an oral language index which was calculated via a principal component analysis using a conglomeration of scores from measures of expressive and receptive vocabulary, syntax, and morphology. Phonemic awareness was comprised of a score calculated by adding raw segmentation and blending assessment scores; these scores were then related to grade level, yielding correlations between .53 and .55. Finally, background information was collected which included the child's IQ and primary language, family literacy habits, and socioeconomic status (SES).

The results of the Cooper, et al. (2002) study highlight and support two important concepts: the influence of home-related factors on oral language, as well as the relationship between oral language and code-related skills. A regression analysis suggested that background information variables uniquely predicted oral language skills but not phonological awareness in kindergarteners (Cooper, et al., 2002). This finding is congruent with many studies indicating the impact of home literacy practices and demographics on oral language (Speece, Roth, Cooper, & de la Paz, 1999; Storch & Whitehurst, 2001). Cooper, et al. (2002) further concluded that a unique and significant variance in phonological awareness was accounted for by oral language skills each year in both the reading and non-reading groups when controlling for reading ability. The findings provide further evidence that oral language influences the development of code-

related skills; more specifically, the results suggest that oral language contributes to the development of reading skills indirectly by impacting phonological awareness (Cooper, et al., 2002; Storch & Whitehurst, 2002).

In relation to the aforementioned conclusions, it is not surprising that several studies indicate that oral language does not predict decoding skills independently or as strongly as early code-related skills do. For example, Lonigan, Burgess, and Anthony (2000) conducted a 1-year longitudinal study following a group of 96 preschoolers from early preschool through late preschool and a group of 97 preschoolers from late preschool through kindergarten or first grade. Letter knowledge, phonological sensitivity, and oral language skills were related to later decoding skills. Oral language components included measures of expressive and receptive vocabulary, expressive grammar, and descriptive use of language. Results indicated that phonological awareness and letter knowledge contributed 54% of the variance in later code-related skills. Although oral language was correlated with later decoding skills, it did not contribute unique variance when phonological awareness and letter knowledge were taken out of the structural equation model (Lonigan, et al., 2000).

Sénéchal and LeFevre (2002) conducted a longitudinal study across 5 years with 168 children who fell into middle- to upper-middle-class SES brackets. The relationship between early home literacy experiences and the development of emergent literacy skills and later reading was assessed. Results supported the notion that home literacy practices impact the course of literacy development. However, the relationships among individual literacy skills were impacted by developmental level. Exposure to books in early childhood strongly related to the development of oral language components, which

included vocabulary and listening comprehension skills. These skills predicted reading achievement scores in third grade (Sénéchal & LeFevre, 2002). However, this study was unable to demonstrate an independent relationship between oral language and reading in first and second grades (Lonigan, 2006; Sénéchal & LeFevre, 2002).

Additional research confirms that there is a decrease in the strength of the relationship between reading and oral language during first and second grades (Dickinson, Golinkoff, & Hirsh-Pasek, 2010; Evans, Shaw, & Bell, 2000; Lonigan, 2006; Sénéchal & LeFevre, 2002; Storch & Whitehurst, 2001, 2002; Whitehurst & Lonigan, 1998). Roth, et al. (1996) hypothesized that more complex oral language skills, such as narrative discourse and other metalinguistic skills, become important once children gain simplistic code-related skills (Roth, et al., 1996). Thus, specific skills might significantly contribute to reading at different points in literacy development (Roth, et al., 1996; Sénéchal & LeFevre, 2002; Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998).

Storch and Whitehurst (2002) confirmed this hypothesis through a longitudinal investigation of 626 children from preschool through fourth grade. Precursor skills measured in preschool and kindergarten included phonemic awareness, oral language (i.e., expressive/receptive vocabulary and narrative recall), and print concepts. Reading accuracy and comprehension were measured from first through fourth grades using several standardized measures, one of which was the Word Attack subtest from the Woodcock-Johnson III, Tests of Achievement (Storch & Whitehurst, 2002). Based on a structural equation model, the data suggested, as previous studies have, that oral language and early code-related skills are highly correlated with one another in preschool (Burgess & Lonigan, 1998; Lonigan, 2006; Lonigan, Schatschneider, et al., 2008a; Shanahan,

2007). Reading in early elementary school was predominantly determined by code-related skills. However, word recognition (Skibbe, et al., 2008) and reading comprehension in later elementary school was primarily determined by oral language (Lonigan, 2006; Storch & Whitehurst, 2002).

The results of NELP's meta-analysis further confirms that oral language moderately predicts at least one measure of later reading achievement; however, when contextual factors such as SES and demographics are controlled, it does not maintain its predictive power (Lonigan & Shanahan, 2008). The investigators imply that these findings may be a function of the way in which oral language is assessed, as well as which components of oral language are measured (Dickinson, et al., 2010; Lonigan, Schatschneider, et al., 2008a; Whitehurst & Lonigan, 2002). When components of oral language more complex than simple vocabulary knowledge were examined (i.e., grammar, definitional skills, and listening comprehension), oral language played a larger role in predicting reading in later elementary school (Dickinson, et al., 2003; Lonigan, Schatschneider, et al., 2008a; Speece, et al., 1999; Storch & Whitehurst, 2002). Overall, the impact of oral language on later reading skills seems to be inconsistent across the literature. This pattern of findings is apparently based on which component of oral language is measured, as well as the developmental stages of the children measured (Storch & Whitehurst, 2002). For example, in the NELP analyses, decoding, reading comprehension, and spelling were moderately predicted by oral language until the analyses were controlled for age, SES, and IQ (Lonigan & Shanahan, 2008). However, other literature suggests that oral language is significant even when controlling for the background variables are (Storch & Whitehurst, 2002). In some studies, oral language

was not significant in the prediction of later decoding and reading skills if phonological awareness and alphabet knowledge were controlled (Storch & Whitehurst, 2002).

Dickinson, Golinkoff, and Hirsh-Pasek (2010) strongly encouraged researchers, practitioners, teachers, and parents to recognize the importance of oral language in the overall development of literacy. The authors commented that the NELP meta-analysis minimized the more complicated and more difficultly measured impacts of background knowledge and language on later reading skills (Dickinson, et al., 2010; Neuman, 2010). Dickinson, et al. (2010) also highlighted the fact that oral language is unique because it plays an important role in early reading development and then again with later reading comprehension. However, the authors recognized that interventions more easily and cost-effectively target code-related skills as opposed to the more complicated to study oral language skills (Dickinson, et al., 2010).

Many studies focus on oral language as a precursor skill when discussing the influence of home literacy practices on later reading skills, despite the many mediating factors that make oral language complicated to study. In fact, oral language was used as an outcome measure in all 32 studies relating to the parents and home program variables in the NELP meta-analysis (Lonigan, Escamilla, et al., 2008). However, very few studies focused on other pre-literacy skills, and none of those was used in enough studies to have sufficient data to include them in the analysis (Lonigan, Escamilla, et al., 2008; Shanahan & Lonigan, 2010). Since phonemic awareness is a strong and stable predictor of later literacy, more research is needed in this area.

Phonological Awareness

In order to learn how to read and to spell, children must be attuned to the intricacies of oral language. They must be able to distinguish between and to be attuned to how parts of words, such as letters (graphemes) and sounds (phonemes), relate (Whitehurst & Lonigan, 1998; Woodcock, McGrew, & Mather, 2001a). Phonological awareness is the ability to perceive, to apprehend, to manipulate, or to analyze the aural facets of spoken language, independent of meaning (Lonigan, et al., 2009; Lonigan, Schatschneider, et al., 2008a). This definition includes the facility to discriminate among or to segment words or parts of words such as syllables and/or phonemes (Lonigan, Schatschneider, et al., 2008a).

The phonological awareness component of phonological processing aids children in connecting printed letters with sounds (Lonigan, et al., 2009; Scarborough, 2002). Attending to how phonemes and graphemes correspond, as well as to the eventual understanding that the sounds are represented by symbols, is essential for decoding language in order to read and to write (Scarborough, 1991, 2002; Whitehurst & Lonigan, 1998; Woodcock, McGrew, & Mather, 2001b). Reading difficulties are often caused by a deficiency in these phonemic awareness skills (Hayiou-Thomas, Harlaar, Dale, & Plomin, 2006; Scarborough, 2002; Schuele & Boudreau, 2008; Woodcock, et al., 2001a, 2001b).

Phonological awareness is one of the most significant, strong, and consistent pre-literacy predictors of later reading success (Dickinson, et al., 2003; Frijters, Barron, & Brunello, 2000; Goswami, 2002; Lonigan, et al., 2009; Lonigan, Schatschneider, et al., 2008a; Neuman, et al., 2000; Schuele & Boudreau, 2008; Shanahan & Lonigan, 2010;

Snow & Oh, 2011; Storch & Whitehurst, 2001, 2002; Townsend & Konold, 2010). The development of code-related skills, such as phonemic awareness and alphabet knowledge, is highly correlated with, and is a stable predictor of, other emergent literacy skills (Frijters, et al., 2000; Lonigan, et al., 2009; Shanahan & Lonigan, 2010). Uniquely, phonological awareness consistently exhibits a moderate to strong effect size in the prediction of later performance on reading, spelling, and sound blending measures. This predictive relationship is stable even when variables such as SES, IQ, and overall language are controlled (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Lonigan & Shanahan, 2008; Scarborough, 2002).

Research indicates that there is a reciprocal relationship between reading and phonological awareness. Initially, phonological awareness helps to develop alphabet knowledge which facilitates reading. Then, more proficient reading increases phonological awareness skills (Burgess & Lonigan, 1998; Hayiou-Thomas, et al., 2006; Storch & Whitehurst, 2002). This phenomenon supports the idea that although pre-literacy skills stimulate growth in conventional literacy skills, there is often overlap and reciprocity between pre-literacy and conventional literacy skill development (Shanahan, 2007; Shanahan & Lonigan, 2010). In light of reciprocal relations among pre-literacy skills, phonological awareness continues to predict conventional reading skills significantly when other pre-literacy variables such as alphabet knowledge, oral language, and prior decoding ability are controlled (Lonigan, Schatschneider, et al., 2008a).

It is important to distinguish clearly the terminology and concepts related to phonemic awareness. The literature related to word onsets (beginning of words) and

rhymes (end of words) often refers to phonological awareness as phonological sensitivity (Lonigan, et al., 2000; Schuele & Boudreau, 2008; Townsend & Konold, 2010). Additionally, research with school-aged children suggests that phonological awareness is a subset of phonological processing skills (Wagner & Torgesen, 1987; Wagner, Torgesen, & Rashotte, 1994). Phonological processing is described broadly as processing oral and written language using the sounds in language (Wagner & Torgesen, 1987). Phonological memory (i.e., temporary storage of sound-based coded information) and phonological lexical access (i.e., efficiency of retrieving previously learned phonological codes from memory) were identified as the other phonological processing skill subsets integral to reading and writing (Lonigan, et al., 2009; Wagner & Torgesen, 1987; Wagner, et al., 1994). However, very few studies have delineated the relationships between different aspects of phonological processing and later reading with the preschool population. One of the studies in this area concluded that vocabulary, cognitive functioning, and print knowledge correlated with all three types of phonological processing. However, the phonological/memory combined factor better predicted early literacy skills than efficient lexical access (Lonigan, et al., 2009).

Phonological awareness is a critical auditory component in the development of reading skills (Townsend & Konold, 2010). Auditory processing measures which assess phonemic awareness often require blending, deleting, matching, reversing, synthesizing, or counting sound units within words (Lonigan, et al., 2009; Woodcock, et al., 2001a, 2001b). These skills are also frequently monitored within tests that more directly assess the decoding skills of preschoolers and older children (Schatschneider, et al., 2008). This is likely because performance on conventional decoding measures in preschool and

kindergarten were found to have strong relationships with performance on assessments of decoding in later development (Lonigan & Shanahan, 2008). The NELP meta-analysis utilized studies that typically measured decoding words and non-words with the Word Identification subtest on the Woodcock Johnson III, Tests of Reading Mastery (Schatschneider, et al., 2008), the Word Attack subtest and the Letter-Word Identification subtest on the Woodcock Johnson III, Tests of Achievement (B. M. Phillips, Lonigan, & Wyatt, 2009; Schatschneider, et al., 2008; Sonnenschein & Baker, 2005). Therefore, it seems that these assessment measures would be useful in measuring both phonological awareness and conventional decoding skills in preschoolers.

Frijters, et al., (2000) conducted a study with 92 kindergarten-aged children relating home literacy activities and children's reading interest with oral language, phonological awareness, and concepts of print. The results indicated that a child's interest in reading, assessed using a self-report measure, was unrelated to phonological awareness. In addition, findings determined that phonological awareness acted as a perfect mediator between oral language (i.e., vocabulary) and written language. In other words, phonological awareness is what facilitates the connection between print and sound information which is gleaned from parent-led home literacy activities, as opposed to vocabulary (Frijters, et al., 2000). Therefore, as children become more fluent with phoneme-grapheme correspondence, they are less reliant on parentally guided reading interactions.

Alphabet Knowledge

Alphabet knowledge refers to the recognition of forms, names, and sounds associated with printed alphabetic letters (Evans, et al., 2000; Lonigan & Shanahan, 2008; Townsend & Konold, 2010). In an alphabetic language wherein symbols (i.e., letters) represent spoken sounds, children must understand that a systematic relationship connects each specific letter to a particular sound, which equates to phonological awareness (Townsend & Konold, 2010). A reciprocal relationship has been identified between letter knowledge and phonological awareness (Burgess & Lonigan, 1998). The association of letters to sounds also enables the decoding of printed language (Townsend & Konold, 2010).

Alphabet knowledge has been identified as the strongest and best stand-alone predictor of later reading success (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Lonigan, 2006; Snow, et al., 1998; Townsend & Konold, 2010). This pre-literacy skill maintains its strong predictive relationship with later decoding, reading comprehension, and spelling when variables such as SES, IQ, age, and phonological awareness are controlled (Lonigan, Schatschneider, et al., 2008a). As a result, it continues to be a focus of early intervention, deficit detection, prediction of reading achievement, and instructional techniques, and it has been emphasized in creating early childhood learning policies (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Lonigan, Schatschneider, et al., 2008a; Neuman, et al., 2000; Piasta & Wagner, 2010; Sénéchal, 2011; Snow, et al., 1998; Storch & Whitehurst, 2002; Strickland & Riley-Ayers, 2006; Whitehurst & Lonigan, 2002).

Piasta and Wagner (2010) carried out a thorough, international meta-analysis using over 8,000 subjects from 63 studies in order to examine the development of alphabet knowledge and the instructional methods. Unlike the NELP meta-analysis, studies were used from non-peer reviewed sources as well as peer-reviewed journals. Researchers were contacted for additional information, presentations, or data. The elements of alphabet knowledge were broken into smaller component categories which included letter-name knowledge, letter-sound knowledge, letter-name fluency, and letter writing (Piasta & Wagner, 2010). Conclusions included that children who struggle to attain knowledge of the alphabet in preschool often experience later difficulties in vocabulary, spelling, as well as reading fluency and comprehension. However, the findings from this meta-analysis demonstrated smaller overall effects of alphabet naming, writing letters, and knowledge of sounds on later learning than in previous large-scale studies (Lonigan, Schatschneider, et al., 2008a; Neuman, et al., 2000; Whitehurst & Lonigan, 1998). The alphabet knowledge components demonstrated greater effect sizes when taught with other emergent literacy skills, further supporting the notion of reciprocal relations of precursor skills (Shanahan, 2007; Shanahan & Lonigan, 2010; Townsend & Konold, 2010). The researchers justified the less significant nature of their findings by explaining that perhaps alphabet knowledge is a function of rote memorization rather than of procedural practice and understanding like phonological awareness (Townsend & Konold, 2010) Secondly, most of the studies they encountered included letter naming and letter sounds as a supplementary or small part of larger instructional programs (Townsend & Konold, 2010). According to Schatschneider et al. (2008), even in the NELP meta-analysis this construct was "…typically assessed with a

measure developed by the investigator" (p. 42). The lack of differences found between study groups assessed in the school arena compared to control groups who did not attain additional intervention at school may be accounted for because alphabet knowledge is a skill often emphasized in the home (Townsend & Konold, 2010). This implies that children who have lower quality literacy interactions in the home may not be sufficiently attaining the amount of literacy instruction needed to help them maintain educational levels comparable to those of their peers. Overall, letter knowledge may not independently be as strongly predictive of later literacy skills as previously believed. Therefore, future studies may wish to be more inclusive of phonological awareness, for example, in addition to alphabet knowledge.

Print Knowledge

Print knowledge is a composite which includes concepts about print, alphabet knowledge, and early decoding skills (Lonigan & Shanahan, 2008). Concepts about print include conventions such as understanding that English print is directionally read from left to right and progresses from the front to the back of the book. It also incorporates knowing about important concepts, such as differentiating the book cover from pages in a book, as well as knowing about the author (Lonigan & Shanahan, 2008; Whitehurst & Lonigan, 1998). According to Lonigan (2006), print knowledge is about grasping the constitution and purpose of books and writing. Justice and Piasta (2011) state that the forms and functions of print are embedded in this concept and that the construct can be divided into "…children's knowledge of *book and print organization* (the way print is organized in different tests), *print meaning* (functions of print as a communication device), *letters* (distinctive features and names of individual letters), and *words*

(combination of units of written language that map out onto spoken language)" (p. 201). In the NELP meta-analysis, it was found to be moderately predictive of later literacy learning. However, predictive power was not maintained when controlling for other contextual variables.

Storch and Whitehurst (2002) explained that print knowledge and phonological awareness, together, play an important role, particularly in elementary school, when children are beginning to crack the alphabetic code relating phonemes and graphemes. Print knowledge seems to be highly interrelated to the other emergent literacy skills (Burgess & Lonigan, 1998). Exposure to print has been demonstrated to help children attain knowledge of the alphabet, for example. At the same time, skills such as oral language and sensitivity to letter sounds may develop without an understand of print concepts (Shanahan, 2007). Studies have also indicated that SES and the home literacy environment impact the development of the skills which comprise print awareness (Justice & Piasta, 2011; Scarborough, 1991; Sénéchal & LeFevre, 2001; Silinskas et al., 2010).

Although previous studies have indicated that print knowledge increases as a function of direct print exposure during shared reading activities between parents and children, extant data show that both children and parents focus on illustrations during shared reading experiences instead of on the text (Evans & Saint-Aubin, 2005; Justice & Piasta, 2011; Justice, Pullen, & Pence, 2008). However, some books have more salient text, which helps parents and children to attend better. For example, character speech that is visible (i.e., speech/thought bubble), illustrations with labels (i.e., the words "pet store" printed on the door of a shop), font changes for emphasis (i.e., color or size), or

sound written out near a character such as an animal (Justice & Piasta; Justice, et al.). According to several new studies, parents and teachers can also help children with print knowledge by using verbal and non-verbal cues to draw attention to the words. These techniques are promising, but with scant data, the authors caution readers to continue to research this area. Although print concepts play an important role in the development of later reading skills, several other pre-literacy skills seem to be better, more stable predictors of later reading (Justice & Piasta; Justice, et al.; B. M. Phillips & Lonigan, 2009).

Home Literacy Environment

Overview of the Home Literacy Environment

According to the U.S. Census Bureau (2011), there were about 9,066,000 3- to 5-year-old children in the United States in 2005, and less than 60% of those children were enrolled in center-based care. The other 40-50% of pre-school children were under the care of their parents, relatives, and/or other care-givers during the day. Although many studies include the impact of school (Shanahan & Lonigan, 2010) on emergent literacy skills, the present study focuses on the home literacy environment (HLE). The home literacy environment is essential to investigate when researching the development of literacy skills, because the home is typically the first place in which a child is exposed to language and has the chance to observe, to discover, and to engage in literacy-related activities (Bracken & Fischel, 2008; DeBaryshe, et al., 2000). The HLE is composed of a conflux of variables related to a family's practices, beliefs, genetics, and SES (Bracken & Fischel, 2008; Burgess, Hecht, & Lonigan, 2002; B. M. Phillips & Lonigan, 2009; Sénéchal, 2011).

Research over the past decade has established links among aspects of the home literacy environment and specific literacy domains such as vocabulary, oral language, comprehension, letter knowledge, phonemic awareness, and overall reading skills (Bracken & Fischel, 2008; Foy & Mann, 2003; Lonigan, Escamilla, et al., 2008; B. M. Phillips & Lonigan, 2009). Components of the HLE that have been assessed include parental involvement (i.e., shared reading, engaging children in conversation, and direct access to print), parent interest and child interest in reading, child motivation, parental expectations and beliefs, and SES (Britto & Brooks-Gunn, 2001; Burgess, et al., 2002; Evans, et al., 2000; Foy & Mann, 2003; Frijters, et al., 2000; Lonigan, Escamilla, et al., 2008; Payne, et al., 1994; B. M. Phillips & Lonigan, 2009; Roberts, Jurgens, & Burchinal, 2005; Rush, 1999; Scarborough & Dobrich, 1994; Sénéchal, 2011; Sénéchal & LeFevre, 2001; Serpell, Sonnenschein, Baker, & Ganapathy, 2002; Silinskas, et al., 2010; Skibbe, et al., 2008; Sonnenschein, Baker, & Katenkamp, 2007; Sonnenschein, Baker, Serpell, & Schmidt, 2000; Sonnenschein & Munsterman, 2002; Stobbart & Alant, 2008; Storch & Whitehurst, 2001; Weigel, et al., 2005; Weigel, Martin, & Bennett, 2006). IQ and genetic influences have also been identified as influencing the development of reading (Bracken & Fischel, 2008). Parental involvement can be further divided into formal versus informal activities (Sénéchal, 2011). The impact of the HLE on emergent literacy skills varies across the literature, depending on which aspects of home literacy were examined, the specified emergent literacy skills which were purportedly impacted, and the way in which the literacy skills were investigated (Lonigan, Escamilla, et al., 2008; B. M. Phillips & Lonigan, 2009; Sénéchal, 2011).

Vukelich and Christie (2009) identified the following practices within the HLE that are important in the encouragement of early literacy skill. The authors discussed child access to books and printed materials, which includes library visits and number of books in the home (Payne, et al., 1994; Rush, 1999; Stoltz & Fischel, 2003). Adults can support literacy activities by pointing out letters in the environment, asking questions during reading time, taking children to the library, reading aloud regularly, and suggesting play ideas which involve reading and writing (Payne, et al., 1994; Vukelich & Christie, 2009). Reading books aloud to children can help to increase positive feelings about literacy-related activities and can provide appropriate modeling of the skills while integrating new vocabulary words (Britto & Brooks-Gunn, 2001; Burgess, 2002; Cunningham & Zibulsky, 2011; Meagher, Arnold, Doctoroff, & Baker, 2008; Rush, 1999; Sénéchal, Pagan, Lever, & Ouellette, 2008; Vukelich & Christie, 2009). Finally, parental reading behavior can model frequent reading and increase reading desirability (Rush, 1999; Storch & Whitehurst, 2001; Weigel, et al., 2005). In total, it is important to understand the familial differences related to individual development of emergent literacy skills (Lonigan, 2006). Various components which comprise the HLE will be enumerated and discussed below.

Attachment and Early Literacy

The interaction between parental attunement and a child's innate temperament plays a large role in the quality of the dyad's relationship (Ainsworth, 1979; Bus & Van Ijzendoorn, 1995). Caregivers who provide nurturance and positive interactions during engagement with their children tend to have more securely attached children who acquire early literacy skills efficiently (Bus & Van Ijzendoorn, 1995; Meagher, et al., 2008). On

the other hand, insecure attachment relationships are often accompanied by fewer shared experiences overall and lead to less interest in shared-reading activities (Bus & Van Ijzendoorn, 1995). Further, less securely attached children have more difficulty staying engaged during the reading interaction, which results in shorter, less frequent reading sessions (Bus & Van Ijzendoorn, 1995; Cunningham & Zibulsky, 2011). However, insecure attachments and literacy practices can be improved with parent-child dyadic work in which teaching and therapeutic engagement focuses on attunement and more fruitful methods of interacting (Ainsworth, 1979; Whitehurst & Lonigan, 1998).

Parent-Child Interactions

Later reading outcomes are impacted by both the quality and quantity of literacy activities experienced in early childhood (Bus, Van Ijzendoorn, & Pellegrini, 1995; Crain-Thoreson, et al., 2001; DeBaryshe, et al., 2000; Taylor, Anthony, Aghara, Smith, & Landry, 2008). Responsive parenting is determined by emotional supportiveness and warmth, attunement to children's interests and needs, and positive affection (Taylor, et al., 2008). In a longitudinal study of maternal responsiveness and emergent literacy outcomes, with measures of attachment taken at varied times in development (6 months, 1 year, 2 years, 3 years, 4 years, and 8 years), consistently high maternal responsiveness predicted several early literacy skills (Taylor, et al., 2008). Consistent responsiveness predicted later reading comprehension when IQ and mother's age were controlled. Word identification and later decoding skills were also predicted, but not above and beyond IQ. The authors expressed the belief that the difference between the prediction of reading comprehension, as opposed to coding-related skills, might be a function of how responsiveness was measured in this study (Taylor, et al., 2008).

A study conducted by Dodici, Draper, and Peterson (2003) also examined early parent-child interactions in relation to emergent literacy. More specifically, the study aimed to investigate maternal responsivity (i.e., mother's appropriate reactions to the child's cues), parental sensitivity (i.e., parental adaptivity to the child's needs), emotional tone (i.e., affect within parent-child interactions), engagement (i.e., joint attention), parental talk (i.e., conversation directed toward the child), and parental guidance (i.e., directive or child-led interactions) in relation to the development of literacy in preschool-aged children. The Parent-Infant/Toddler Interaction Coding System (PICS; Dodici & Draper, 2001) was designed to elicit child language, parent language, emotional tone, joint attention, parental guidance (to determine directive or non-directive nature of parental instruction), and responsiveness. Children and their parents from low SES environments were video-taped during prompted interactions at 14, 24, 36, and 54 months, and the tapes were coded according to the PICS.

The Stony Brook Family Reading Survey (SBFRS), created by Whitehurst (1993), is a 52-item parent rating scale that evaluates literacy environment variables in preschool children. It also measures parental behaviors, expectations, and beliefs related to their preschool child's academic and non-academic development (Touliatos, Perlmutter, & Holden, 2001). This survey was adapted by Dodici, Draper, and Peterson (2003), and only nine questions were used based on two previous studies (Payne, et al., 1994; Rush, 1999). The content of the selected questions included the frequency of book reading, age of the child when parents began reading to him/her, number of books in the home, frequency of library visits, the child's reading interest (i.e., the frequency with which the child reads and requests a parent to read to him/her), and parent interest in

reading (Rush, 1999; Whitehurst, 1993). According to Dodici, Draper, and Peterson, (2003), the outcome variables were measured using the Peabody Picture Vocabulary Test-Third Edition (Dunn & Dunn, 1997), the Letter-Word Identification of the Woodcock-Johnson Tests of Achievement- Revised (WJ-R; Woodcock and Johnson, 1989), and the Test of Language Development-Primary: Third Edition (TOLD-P:3; Newcomer & Hammill, 1997).

The results of this study indicated that parent-child interactions from very early in the child's life predict vocabulary, symbolic representation, and phonemic analysis (Dodici, et al., 2003). The overall PICS score most strongly predicted the WJ-R Letter-Word Identification score, which was attained the summer prior to when the subjects were entering kindergarten. These findings support the already-established literature which relates parent-child interactions to vocabulary development in preschoolers (Scarborough & Dobrich, 1994; Taylor, et al., 2008; Vukelich & Christie, 2009). However, the findings also contest several other studies which indicate that phonemic awareness is not directly related to the home literacy environment; rather, it relates indirectly through oral language skills (Lonigan, et al., 2009; Sénéchal, 2011). The selected questions from SBFRS did not significantly predict parent-child interaction when compared to the PICS (Dodici, et al., 2003). This may be a function of the SBFRS and the PICS measuring different constructs. Additionally, the results may have been different had the entire measure been used. The PICS measure was useful, and direct observation of interactions allows for authentic, accurate assessment. However, the nature of the time and resource constraints limited the size of the sample to 27 families.

Rating scale methods of investigating family literacy variables such as the SBFRS should be utilized in future research.

Rush (1999) reached similar conclusions to those of his colleagues, Dodici, Draper, and Peterson (2003). She examined letter-naming, phoneme blending, and onset recognition in relation to parent-child interactions and early literacy activities in the homes of 39 children entering preschool from low SES backgrounds. The precursor skills were assessed using tools similar to those in the aforementioned study. The same nine questions were selected from SBFRS as were chosen in the Dodici, Draper, and Peterson (2003) study. The Code for Interactive Recording of Caregiving and Learning Environments-2 (CIRCLE-2; Atwater, Montagna, Creighton, Williams, & Hou, 1993) is a computerized tool used to observe parents and children naturally interacting over an hour period (Rush, 1999). Raters observed ecological variables of the care-giving environment as well as the parent's and child's behavior across interval which alternated each fifteen seconds on the computer program. According to Rush (1999), assessment categories on this measure included activity variables (i.e., free play, clean-up, meal time, or whatever activity was occurring), response of the caregiver (i.e., negative, positive, directive, vocal, singing, etc.), parental involvement with the child (i.e., share, supervise, interact, child-lead, or adult not present), social relatedness of the child (i.e., smiles, negative responses, vocal interactions, gestures, joint-attention, etc.), and engagement of the child (i.e., cooperation, imaginative play, attention to people or objects, self-injurious behavior, aggression, non-compliance, and tantrums). The SBFRS was administered to parents following the direct observation in the home, and the emergent literacy assessments were given a week later at their preschool center (Rush, 1999).

Rush (1999) found that there were moderate to strong correlations between the SBFRS and all of the other measures of early literacy, including phoneme blending, onset recognition, letter naming, expressive vocabulary, and receptive vocabulary. Thus, the study again supported the notion that vocabulary development is related to parent-child interactions (Dodici, et al., 2003; Scarborough & Dobrich, 1994; Taylor, et al., 2008; Vukelich & Christie, 2009), but also that phonemic awareness is related to the home literacy environment factors as measured by the SBFRS. Phonemic awareness's relationship to the home literacy factors measured by the SBFRS contradicts the findings of the Dodici, et al. (2003) study. The amount of time spent engaging in structured play related to phoneme awareness, while more free play during the observation was correlated with phoneme blending and expressive vocabulary. Parental sharing of an activity related moderately to increased letter naming skills as well as to onset recognition fluency (i.e., recognition and production of the beginning sound of an orally presented word that matches a specified picture). Finally, higher rates of talking between parent and child resulted in higher receptive vocabulary scores (Rush, 1999). These findings continued to illuminate the impact of parental interactions with children in relation to the emergence of literacy skills. Additionally, this study supports the use of the brief, simplistic measurement of the nine selected SBFRS questions about home reading emphasis and child reading interest in relation to *in vivo* observations of parent-child interactions.

Rush (1999) indicated that structured play was related to increased phonemic awareness. Another more structured home literacy activity is shared reading. Shared reading is a specific home literacy practice that fosters growth of foundational reading

skills while promoting positive parent-child interactions (Bus, et al., 1995; Lonigan, Shanahan, et al., 2008; Meagher, et al., 2008; Taylor, et al., 2008; Whitehurst & Lonigan, 1998).

Shared Reading

A parent reading a book with a child is a classic American cultural icon (Whitehurst & Lonigan, 1998). Shared reading is one of the most studied and publically advocated elements of the home literacy environment (Bracken & Fischel, 2008; Bus & Van Ijzendoorn, 1995; Bus, et al., 1995; Cunningham & Zibulsky, 2011; Lonigan, Shanahan, et al., 2008; B. M. Phillips & Lonigan, 2009). Any skilled reader can help to scaffold reading skills through sharing a reading experience with one child or a group of children. Still, the literature often discusses the act of reading aloud to children as existing between either a parent or a teacher and a child (Cunningham & Zibulsky, 2011). Variations of shared reading may include a myriad of elements, such as helping a child to attend to print material, to learn new vocabulary words, to practice rhyming, or to foster other interactive practices. Therefore, it is essential for researchers to describe clearly the nature of the experience in relation to early reading outcomes (Cunningham & Zibulsky, 2011). Payne, et al., (1994) investigated the impact of shared reading on 323 children from low SES backgrounds. Similar questions were selected from the SBFRS as were used in previous studies (Dodici, et al., 2003; Rush, 1999). Results indicated that parent-child interaction, in the form of shared reading, accounted for 12-18% of the variance in expressive and receptive vocabulary scores.

Children often reread the same book (Evans, et al., 2000). This helps them to integrate print concepts and new vocabulary words (Aram & Levin, 2002; Burgess, et al.,

2002; Evans & Saint-Aubin, 2005). A parent or teacher might help the child to attend to pertinent information by pointing out new words, asking questions which encourage thought about the significance of pictures or text on a page (Audet, Evans, Williamson, & Reynolds, 2008; Evans & Saint-Aubin, 2005; Sénéchal, 2011). Adults can also help attention and comprehension by asking a child to repeat the story or by likening the event in the book to one that is familiar to a child (Evans & Saint-Aubin, 2005). Vocabulary growth is often related to the type of interaction which occurs during shared reading. The literature delineates that *dialog reading* is a reading style that encourages interaction between adults and children while reading picture books (Meagher, et al., 2008; Mol, Bus, De Jong, & Smeets, 2008; Whitehurst & Lonigan, 1998). The adult and child take turns reading and telling the story so that both parties are able to ask questions, and the parent is able to help the child build the story and narrate understanding of the plot. Research has demonstrated that children from low SES backgrounds, who often enter school with small vocabularies compared to children from higher SES backgrounds, are able to increase this skill rapidly using dialog reading (Sénéchal, 2011; Sénéchal, et al., 2008; Whitehurst & Lonigan, 1998, 2002). Adult questioning during shared reading at home and school has also been related to improved precursor skills in preschool children (Burchinal et al., 2000; Cunningham & Zibulsky, 2011).

Book-sharing interventions had a significant, moderate effect size relating oral language and print knowledge to later reading skill in the NELP meta-analysis on preschool and kindergarten children (Lonigan, Shanahan, et al., 2008). Shared reading interventions administered in preschool and kindergarten were equally predictive of later reading success. Other pre-literacy skills did not significantly relate book sharing to later

reading success in this evaluation. However, all 19 studies used in the NELP meta-analysis to analyze the impact of shared reading on later literacy used oral language as an outcome measure, while only four studies measured print knowledge, and two studies used other literacy outcomes (Lonigan, Shanahan, et al., 2008; Shanahan & Lonigan, 2010). Therefore, there were insufficient data to determine conclusively the relation of other precursor skills to later reading based on this study. Further, the impact of SES, ethnic backgrounds, home languages, and other factors could not be evaluated due to lack of data (Lonigan, Shanahan, et al., 2008). Several other studies contradict this finding and have concluded that shared reading and parent-child interaction is directly related to phonemic awareness development (Dodici, et al., 2003; Foy & Mann, 2003; Lonigan, et al., 2009; Rush, 1999). This controversy may be a function of phonemic awareness's mediating oral language skills such as vocabulary (Sénéchal, 2011). More research should be conducted to understand better the impact of parent-child interactions on phonemic awareness development.

Parental Print Exposure

In general, shared reading experiences lead to increased vocabulary and knowledge of print (DeBaryshe, 1996; DeBaryshe, et al., 2000; Frijters, et al., 2000; Payne, et al., 1994; B. M. Phillips & Lonigan, 2009; Sénéchal, 2011; Sénéchal & LeFevre, 2001; Sénéchal & LeFevre, 2002; Sénéchal, et al., 2008; Stoltz & Fischel, 2003; Storch & Whitehurst, 2001, 2002). These studies declare that shared reading experiences between parents and children increase the direct exposure to print materials, therefore increasing the overall print knowledge acquired (Justice & Piasta, 2011). However, recent findings explain that children's visual attention is directed at pictures instead of

text for the majority of time during shared reading (Evans & Saint-Aubin, 2005; Justice, et al., 2008). Additionally, even parents tend to direct their attention and verbal discussion to illustrations as opposed to emphasizing text during shared reading. Explicit verbal and non-verbal cues can help parents and children to attend to the print (Justice & Piasta, 2011; Justice, et al., 2008).

Print knowledge, phonemic awareness, alphabet knowledge, and oral language have been associated with exposure to print in the home literacy environment (Burgess & Lonigan, 1998; Justice & Piasta, 2011; Justice, et al., 2008; Shanahan, 2007; Storch & Whitehurst, 2001). Additionally, print exposure in adults significantly predicts reading comprehension and verbal intelligence in parents, which might help a parent to teach and to emphasize foundational literacy skills in preschool children (Scarborough & Dobrich, 1994). Vukelich and Christie (2009) found that child access to books and printed materials, which includes library visits and number of books in the home, increase emergent literacy skills (Payne, et al., 1994; Rush, 1999; Stoltz & Fischel, 2003).

Parental Literacy Habits

Exposure to parent reading behaviors can model frequent reading, increase reading desirability, and shape children's feelings about the value of reading (Rush, 1999; Scarborough & Dobrich, 1994; Storch & Whitehurst, 2001; Weigel, et al., 2005). According to Payne, et al. (1994), shared book reading impacts expressive and receptive language scores more than the amount of time caregivers spend reading independently and their own reading enjoyment, as assessed by the SBFRS (Whitehurst, 1993). Scarborough (1991) indicated that parent literacy habits do not relate to the amount of time parents spend engaging in literacy-related behaviors with their children. However,

he asserted that parental literacy habits may influence the reading interest in children. While, some researchers argue that parental reading behavior does not influence phonological awareness independent of oral language (i.e., vocabulary) and alphabet knowledge (Lonigan, et al., 2009; Sénéchal, 2011), other studies indicate that these behaviors correlate directly with phonological awareness (Foy & Mann, 2003; Weigel, et al., 2005). Weigel, et al. (2005) studied the influences of home and school on the literacy development of 85 preschool children. They used the SBFRS (Whitehurst, 1993) to determine parent literacy habits. Conclusions of the study were that parent habits, activities, and beliefs about reading are correlated with print knowledge as well as with expressive and receptive language. Further, the parents who scored highest on supportive parental reading beliefs had the children who scored highest on all of the literacy measures (Weigel, et al., 2005).

Parental Expectations and Beliefs

Parents determine the way in which they integrate shared book reading and other literacy-rich activities with their children based on their beliefs and academic expectations (Burgess, et al., 2002). Thus, they will chose to be more academic, child-led, interactive, or repetitive based on what they feel works best with their beliefs and their child's needs. Stoltz and Fischel (2003) conducted an observational study with 42 parent-child pairs. The children were videotaped reading to their respective parents, and the video tapes were coded based on reading feedback strategies. The parents were grouped based on being learner-centered (i.e., used various strategies during child feedback), inactive (i.e., did not interrupt child's reading), or direct (i.e., immediately provided missed words). The pairs were asked to bring 3 books to represent typical

reading from the family home. The books were assessed based on the average number of words. Questions were taken from the SBFRS (Whitehurst, 1993) that regarded parental beliefs about reading as well reading practices at home.

Stoltz and Fischel (2003) concluded that inactive parents had children who performed better on measures of reading which included the Word Attack and Word Reading subtests from the Woodcock Reading Mastery Test (Woodcock, 1987). The authors expressed the belief that this occurred because the parents of the better readers might not have needed to interrupt as much, since the children made fewer reading mistakes during the observation (Stoltz & Fischel, 2003). Interestingly, parent reports about the number of books in the home, as measured by the SBFRS, and the sample of books brought into the session, correlated with the book difficulty at home. In other words, parents who reported more reading behaviors at home, and children who were more advanced readers, tended to have more advanced books at home (Stoltz & Fischel, 2003).

DeBaryshe (1996; 2000) asserted that parents who regard early literacy experiences highly often value their role as a teacher to their children and frequently provide more vast, rich literacy experiences than parents who do not regard reading highly. Children with parents who value literacy often have better reading skills (Weigel, et al., 2005, 2006). Further, parents who report a higher value of literacy also tend to have higher academic expectations for their children (B. M. Phillips & Lonigan, 2009; Weigel, et al., 2005, 2006).

The Parent Reading Belief Inventory (PRBI; DeBaryshe and Binder, 1994) is a parent rating scale which assesses the mother's role as teacher in school-related tasks,

positive effects associated with reading, the value of child participation during shared reading, feelings about direct versus indirect instruction of reading, and attitudes about the child's acquiring practical knowledge and morals from books (DeBaryshe, 1996; DeBaryshe, et al., 2000). This parent rating form was used in a study which measured emergent literacy skills in relation to maternal literacy beliefs in 79 parent-child pairs (Weigel, et al., 2006). The findings of this study determined that mothers who were classified as more facilitative (i.e., they believed that taking an active role in literacy at home would help children gain skills and morals) had children who had better print knowledge skills and had a higher interest in reading.

Storch and Whitehurst (Storch & Whitehurst, 2001) studied 367 4-year-olds from low SES environments. Literacy skills were examined in preschool, kindergarten, first grade, and second grade. A variety of measures were used to assess inside-out and out-side-in skills which included memory, auditory segmenting, print concepts, writing, word reading, word attack, receptive vocabulary, and expressive vocabulary (Storch & Whitehurst, 2001). The SBFRS was again used to assess home literacy factors. However, this study used 11 questions that inquired about shared reading, books in the home, child reading interest, visits to the library, and parental academic expectations (Whitehurst, 1993). A structural equation model determined that over 40% of the variance in outside-in skills was accounted for by home and family characteristics, and the parental characteristics accounted for most of the variance, second to the parental academic expectations. There was a strong continuity between inside-out and outside-in skills throughout the years. Additionally, reading ability was most related to the child's inside-out score in kindergarten, even though reading uses both inside-out and outside-in skills

(Storch & Whitehurst, 2001). These findings reinforce the notion that parental beliefs and attitudes influence outside-in skills, and that the composite of literacy skills is impacted over the years by all of the previously mentioned pre-literacy skills (Weigel, et al., 2005, 2006).

Sonnenschein, Baker, and Katenkamp (2007) indicated that an entertainment focused parental belief system about learning (i.e., literacy learning should be a source of fun, playful interactions) better predicted the Letter-Word Identification and Passage Comprehension subtest scores on the Woodcock-Johnson Tests of Achievement, Third Edition (Woodcock, et al., 2001a) when compared to children whose parents have a skills orientation (i.e., a didactic approach to teaching literacy) (Sonnenschein & Baker, 2005; Sonnenschein, et al., 2000; Sonnenschein & Munsterman, 2002). Parental education can also influence language and literacy development, as well as parental beliefs (West, Denton, & Germino- Hausken, 2000). DeBaryshe (2000) indicated that maternal beliefs about shared reading relate to the number of books in the home, the age of the child when parents began reading to the child, and how rich the interactions are during reading even when maternal education level and SES are controlled.

Child Reading Interest

The development of foundational literacy skills and later literacy is also related to the child's interest in reading, writing, and literacy-related activities (Frijters, et al., 2000; Sénéchal, 2011). Interest in storybook reading was associated with shared reading frequency and the development of vocabulary skills (Sénéchal, LeFevre, Hudson, & Lawson, 1996). Research indicates that social context and regularity of shared reading influence children's interest in reading (Bus & Van Ijzendoorn, 1995; Bus, et al., 1995;

Scarborough & Dobrich, 1994). Discussion of books during shared reading is also associated with increased interest (Meagher, et al., 2008). Additionally, children who had positive reading experiences were more likely to be motivated to read (Bracken & Fischel, 2008; Scarborough & Dobrich, 1994). Sonnenschein and Munsterman (2002) found that parental affect during shared reading interactions predicted children‘s interest in reading.

Reading interest can be determined by the frequency with which the child requests a parent to read to him or her, the frequency with which a child engages in literacy activities independently, and parent reports of these behaviors on measures such as the SBFRS (Hammer, et al., 2011; Payne, et al., 1994; Scarborough & Dobrich, 1994; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998). Fritjters et al., (2000) uniquely measured interest in reading material directly by having preschool children point to a happy or a sad face in relation to literacy-related activities. Letter-name and letter-sound knowledge were found to be related to this measure of children’s literacy interest (Frijters, et al., 2000; Sénéchal, 2011).

Bracken and Fischel (2008) conducted a study with 233 children from low SES homes. Families completed a demographic questionnaire and selected questions from the SBFRS (Whitehurst, 1993). Items from the questionnaire that were chosen included information about shared reading frequency and duration of the sessions, age when the parent began reading to the child, frequency with which the child asks parents to read to him or her, the child’s enjoyment of reading, library visits, independent child literacy activities, duration of parents’ reading independently, and parental enjoyment of reading (Bracken & Fischel, 2008; Whitehurst, 1993). Child assessments were carried out over

several weeks following the completion of the SBFRS. Literacy assessment measures included the Get Ready to Read! Screen (GRTR: National Center for Learning Disabilities, 2000); the Peabody Picture Vocabulary Test-III (PPVT-III; Dunn & Dunn, 1997) for receptive vocabulary; the Family and Child Experiences Survey (FACES; Administration on Children, Youth, and Families, 2003) to assess alphabet knowledge, story content, and print concepts; and the Letter-Word Identification subtest from the Woodcock-Johnson Revised Tests of Achievement (WJ-R: Woodcock & Johnson, 1989).

Bracken and Fischel (2008) used a principle components analysis of selected questions from the SBFRS which yielded three factors including child reading interest, parent reading interest, and parent-child interaction. Parent reading interest was correlated most significantly with child reading interest; however, all factors from the SBFRS were correlated (Bracken & Fischel, 2008). Correlations between the factors and the measures of literacy determined the relationships between the home literacy factors and precursor skills. All of the literacy measures correlated with child reading interest and with parent-child interactions, and receptive language was correlated with parent reading interest. Parent education was the demographic characteristic most highly correlated with family reading behavior, and high parent education was correlated with high parent reading interest as well with more frequent parent-child interactions (Bracken & Fischel, 2008). This study expands on previous studies which related home literacy factors to emergent literacy. Valuable information can be gleaned from the SBFRS. However, this study could have more thoroughly investigated the home literacy environment by expanding the number of questions used from the survey and investigating a sample of families from a variety of SES homes.

Socioeconomic Status (SES)

Socioeconomic Status (SES) impacts various aspects of child development, particularly when the brain is in a vulnerable, malleable state such as in preschool children (Bracken & Fischel, 2008). Parental financial status plays the greatest role during early childhood, and stress related to finances can impact parenting (Duncan & Brooks-Gunn, 2000). Children from low SES families are more likely to perform poorly academically and to fail to complete high school (Duncan & Brooks-Gunn, 2000; Strickland & Riley-Ayers, 2006). Lower performance on phonological awareness, letter knowledge, and oral language measures have been found among children from low SES homes (Payne, et al., 1994; Storch & Whitehurst, 2001). Precursor literacy skills and later reading success are specifically impacted by SES (Bracken & Fischel, 2008; Payne, et al., 1994; Storch & Whitehurst, 2001; Whitehurst & Lonigan, 1998, 2002). Some researchers indicate that SES is a moderator variable that is hard to study because sample sizes are often either not large enough or not representative of a specified population (Sénéchal, 2011).

Purpose of the Study

Emergent literacy skills, which evolve prior to five years of age, strongly predict success in later literacy learning and are integral to attaining knowledge in many other arenas throughout life (Invernizzi, et al., 2010; R. D. Phillips, et al., 2010; Sénéchal & LeFevre, 2002; Sénéchal & Young, 2008). Additionally, early success on measures of decoding, reading comprehension, and spelling strongly predict later success in these areas (Lonigan, et al., 2009). Reading problems and associated difficulties in early childhood often continue to impact an individual throughout school years and into

adulthood (Whitehurst & Lonigan, 2002). The benefits of early identification of and intervention with children at risk for developing reading problems have been well-established in the research and have even influenced federal law (Bowman, et al., 2001; Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], 2000; Lonigan & Shanahan, 2008; Neuman, et al., 2000; Snow, et al., 1998).

Phonological awareness is one of the most significant, strongest, and most consistent pre-literacy predictors of later reading success (Dickinson, et al., 2003; Frijters, et al., 2000; Goswami, 2002; Lonigan, et al., 2009; Lonigan, Schatschneider, et al., 2008a; Neuman, et al., 2000; Schuele & Boudreau, 2008; Shanahan & Lonigan, 2010; Snow & Oh, 2011; Storch & Whitehurst, 2001, 2002; Townsend & Konold, 2010). This is a critical auditory component in the development of reading skills (Townsend & Konold, 2010). Auditory processing measures which assess phonemic awareness often require blending, deleting, matching, reversing, synthesizing, or counting sound units within words (Lonigan, et al., 2009; Woodcock, et al., 2001a, 2001b). These aspects of phonemic awareness are also frequently included within tests that more directly assess the decoding skills of preschoolers and older children (Schatschneider, et al., 2008), and performance on conventional decoding measures in preschool and kindergarten were found to have strong relationships with assessments of decoding in later development (Lonigan & Shanahan, 2008). The NELP meta-analysis utilized studies that typically measured decoding words and non-words with the Word Identification subtest on the Woodcock Johnson III, Tests of Reading Mastery (Schatschneider, et al., 2008), as well as the Word Attack and the Letter-Word Identification subtests on the Woodcock Johnson III, Tests of Achievement (B. M. Phillips, et al., 2009; Schatschneider, et al.,

2008; Sonnenschein & Baker, 2005). Therefore, it seems that these assessment measures would be useful in measuring both phonological awareness and conventional decoding skills in preschoolers.

The home literacy environment and its components are essential to investigate when researching the development of literacy skills, since the home is typically the first place in which a child is exposed to language and has the chance to observe, to discover, and to engage in literacy-related activities (DeBaryshe, et al., 2000; Green, et al., 2002; Lonigan, Escamilla, et al., 2008; Lonigan & Shanahan, 2008; Lonigan, Shanahan, et al., 2008; Weigel, et al., 2005). Components of home literacy that have been studied include parental involvement (i.e., sharing reading, engaging children in conversation, and providing direct access to print), parent interest and child interest in reading, child motivation, parental expectations and beliefs, and SES (Britto & Brooks-Gunn, 2001; Burgess, et al., 2002; Evans, et al., 2000; Foy & Mann, 2003; Frijters, et al., 2000; Lonigan, Escamilla, et al., 2008; Payne, et al., 1994; B. M. Phillips & Lonigan, 2009; Roberts, et al., 2005; Rush, 1999; Scarborough & Dobrich, 1994; Sénéchal, 2011; Sénéchal & LeFevre, 2001; Serpell, et al., 2002; Silinskas, et al., 2010; Skibbe, et al., 2008; Sonnenschein, et al., 2007; Sonnenschein, et al., 2000; Sonnenschein & Munsterman, 2002; Stobbart & Alant, 2008; Storch & Whitehurst, 2001; Weigel, et al., 2005, 2006). The Stony Brook Family Reading Survey (SBFRS), which was created by Whitehurst (1993), is a 52-item parent rating which evaluates a myriad of important variables in the home literacy environment of preschool children. This survey is an efficient and valuable tool. Although this survey has been used in several studies, none has used it in its entirety, particularly for isolating the relationship between code-related

skills (i.e. print knowledge, alphabet knowledge, and phonological processing) and home literacy factors.

Research over the past decade has established links between aspects of the home literacy environment and specific literacy domains such as vocabulary, oral language, comprehension, letter knowledge, phonemic awareness, and overall reading skills (Bracken & Fischel, 2008; Foy & Mann, 2003; Lonigan, Escamilla, et al., 2008; B. M. Phillips & Lonigan, 2009). However, many studies focus on oral language as a precursor skill when discussing the influence of home literacy practices on later reading skills, despite the many mediating factors that make oral language complicated to study (Lonigan, Escamilla, et al., 2008). Since phonemic awareness is a strong and stable predictor of later literacy, and interventions more easily and cost-effectively target code-related skills as opposed to the more complicated-to-study oral language skills, more research is needed to relate phonemic awareness to specific factors in the home literacy environment (Dickinson, et al., 2010). The purpose of this study is to identify factors in the home literacy environment using the SBFRS in order to understand more fully the extent to which these factors predict code-related skills as assessed by selected subtests of the WJ-III.

Hypotheses

Based upon a review of the literature, three main hypotheses have been delineated and are described below as follows:

Hypothesis 1

On the Stony Brook Family Reading Survey (SBFRS), it is hypothesized that there will be at least three orthogonal factors which have eigenvalues above 3.0.

Hypothesis 2

Each of the SBFRS rotated factors considered together in a stepwise multiple regression analysis will contribute significantly to the prediction of phonological awareness as measured by the raw scores of the Phonemic Awareness 3 (PA3) cluster from the Woodcock-Johnson III (WJ III) when age is considered as a covariate.

Hypothesis 3

Each of the SBFRS rotated factors considered together in a stepwise multiple regression analysis will contribute significantly to the prediction of basic reading as measured by the raw scores of the Basic Reading Skills cluster of the WJ III when age is considered as a covariate.

CHAPTER III

Method

This research used previously collected data from the Factors Predicting Early Reading Skills in Preschool Children (FPERSPC) and the Ongoing Research: Emergent Literacy Skills Enhancement (OR ELSE) projects. The aforementioned IRB-approved, multidisciplinary, collaborative research studies (CPS100330501 and CPS09010401) sought to examine early reading skills acquisition by identifying relationships between initial screening information and emergent literacy assessments. The OR ELSE project also aimed to examine the efficacy and effects of the Ladders to Literacy early literacy curriculum enhancement which was designed to encourage pre-reading skills. The Ladders to Literacy curriculum was developed by Angela Notari-Syverson, Ph.D. (1998) and was implemented in several classes at both preschools.

Participants

Data were gathered from 368 male and female children who attended two socioeconomically and ethnically different preschool centers between 2004 and 2006. Vision, hearing, and developmental screenings were conducted with all of the students. Developmental screening measures and a variety of selected subtests from comprehensive assessment tools were also administered in order to evaluate the emergent literacy skills of the preschoolers. Parents and teachers completed rating scales and questionnaires, which included comprehensive information about family demographics and the development of reading and precursor skills at school and home.

The participants included in the current study were selected from the mostly de-identified, archival database. The subjects from the FPERSPC and the OR ELSE projects

fit the following inclusion criteria: (a) English was each child's primary language; (b) each child was 3 years of age or older by January 1, 2005 for the 2004-2005 research year and by January 1, 2006 for the 2005-2006 year of the project; and (c) parental consent was obtained. Participants were excluded from the study if they were younger than 3 years of age at the January 1st cutoff dates or if they did not meet the other inclusion criteria.

For the first analysis of the current study, participants were excluded if the Demographic Questionnaire and the Stony Brook Family Reading Survey (SBFRS) (Whitehurst, 1993) were not completed and returned. Children were also excluded from the analysis if they did not pass the hearing and/or vision screenings. As a result, 165 subjects (73 boys, 92 girls, age range 3-5 years) were selected from the initial 368 participants (173 boys and 195 girls) who met the criteria for the project.

Participants for the second segment of data analysis were selected from the 165 subjects who meet initial FPERSPC and OR ELSE criteria as well as the additional SBFRS criteria. If participants' parents did not complete the Demographic Questionnaire and/or the SBFRS (Whitehurst, 1993) or the preschool participants did not complete the selected subtests of the Woodcock-Johnson III (WJ III), the subjects were excluded. Children were also excluded from the analysis if they did not pass the hearing and/or vision screenings. A select group of 95 participants (42 boys, 53 girls, age range 3-5 years) met these criteria.

The two preschool centers that participated in the studies are located in South Florida. One of the schools is a private preschool center with a population comprised primarily of Caucasian children from high and middle socioeconomic status (SES)

backgrounds. The other preschool was publicly subsidized, and the population primarily consisted of African-American children from low SES backgrounds. The private school works in conjunction with a private university to provide early childhood training and research opportunities. The curriculum at the private preschool is informed by the 5C Curriculum Framework, which integrates learning pre-literacy and pre-academic skills through active exploration and play. The topics included in the 5C Curriculum Framework include critical thinking, creative expression, cooperation, concept development, and communication (The Mailman Segal Institute for Early Childhood Studies, 2010).

The publicly subsidized preschool used a more structured approach to teaching in addition to the implementation of play-based learning. This program was also informed by the 5C Curriculum. Further, the subsidized school aimed to reduce poverty in low-incomes families by providing family-oriented child care services, family interventions, and support. Participants from the two schools combined represented diverse racial, ethnic, and socioeconomic backgrounds.

Measures

The Stony Brook Family Reading Survey (SBFRS) was completed by parents of the preschool-aged participants. Children were administered a battery of assessments that included selected subtests from the Woodcock-Johnson III, Tests of Cognitive Abilities (WJ III COG) and Achievement (WJ III ACH). Subtests selected for the present analyses from the Woodcock-Johnson III included Sound Blending, Incomplete Words, Letter-Word Identification, Word Attack, and Sound Awareness.

Stony Brook Family Reading Survey. The Stony Brook Family Reading Survey is a questionnaire completed by caregivers to evaluate literacy environment variables in preschool children. It also measures parental behaviors, expectations, and beliefs related to their preschool child's academic and social development (Touliatos, et al., 2001). This 55-item, Likert-type questionnaire contains 13 questions related to demographic information, while the remaining 42 items assess several domains of the home literacy environment (Touliatos, et al., 2001). Some items address family literacy activities that influence early exposure to reading experiences within the home. Questions relate to frequency of shared picture book reading, age of onset of shared reading, duration of reading sessions, number of picture books at home, frequency of a child's requests to engage in private play with books, frequency of trips to the library, as well as regularity and enjoyment of caregiver's private reading. Other items assess parental academic expectations. The response format for most of the questions includes 4 to 7 answer choices; however, one question has 9 response options. On the items associated with responsibility, the respondent is instructed to indicate if the parent or child, parent or teacher, or child or teacher is more responsible for academic and non-academic development on a 7-point rating scale. On the SBFRS, Whitehurst (1993) explained the following:

> The SBFRS is considered by its author as a source for the construction of scales and not a scale itself….[Further], it examines a wide variety of family variables from which scales measuring specific family attributes can be derived. Thus, items and scoring procedures selected are determined by the specific needs of the user. (p. 7)

As a result, overall reliability calculations are not considered appropriate, and normative data are not available. Communication with the survey's author confirmed that norms have not been created since the development of the assessment (G. J. Whitehurst, personal communication, January 20, 2011). According to the literature, information gathered from this measure indicates that the home literacy environment accounts for 18.5% of the variance across child reading scores, while 12% of the total variance is accounted for by caregiver education and IQ (Touliatos, et al., 2001). Approximately 5 to 10 minutes were required for caregivers to complete the survey.

Clusters selected from the Woodcock-Johnson III, Tests of Cognitive Abilities and Tests of Achievement. The Woodcock-Johnson III, Test of Cognitive Abilities (WJ III COG) measures general and specific cognitive functioning, while the Woodcock-Johnson, Tests of Achievement (WJ III ACH) determines academic functioning and rate of specific skill acquisition. Both compare individuals from 2 to 90 years old with same-aged peers to determine levels of functioning. Participants were administered several subtests selected from each assessment measure. The Sound Blending, Incomplete Words, and Sound Awareness subtests were chosen from the WJ III COG. The Letter-Word Identification and Word Attack subtests were selected from the WJ III ACH. Sound Blending, Incomplete Words, and Sound Awareness comprise the Phonemic Awareness 3 Cluster. The Basic Reading Skills Cluster includes the Letter-Word Identification and Word Attack subtests (Woodcock, et al., 2001a, 2001b) Administration of all subtests took approximately 20 minutes per child. Woodcock, McGrew, and Mather (2001b) provide a rationale for why cluster scores are chosen for analysis as opposed to individual subtest scores:

> Cluster interpretation minimizes the danger of generalizing from the score for a single, narrow ability to a broad, multifaceted ability. Cluster interpretation results in higher validity because more than one component of a broad ability comprises the score that serves as the basis for interpretation. The subject's performance on individual tests is primarily used to understand the broader cluster score and broad area of competence. (p. 1)

Phonemic Awareness 3 cluster. The Phonemic Awareness 3 (PA3) cluster measures skills related to synthesizing and analyzing sounds produced in speech. It is one of the strongest predictors of developing foundational literacy proficiency. Further, it is a vital component of predicting achievement of academic skills. Children must have a grasp of the aural structure of language in order to learn how to read and to spell. For example, they must be able to distinguish between and to be attuned to how parts of words such as letters (graphemes) and sounds (phonemes) relate. Understanding that the sounds are represented by symbols, as well as attending to how phonemes and graphemes correspond, is essential for decoding language to read and to write (Whitehurst & Lonigan, 1998; Woodcock, et al., 2001b). Reading difficulties are often caused by a deficiency in these skills (Woodcock, et al., 2001a, 2001b). The test-retest reliability for this cluster ranges from .90 to .92 for 4- and 5-year-olds (McGrew & Woodcock, 2001).

The PA3 cluster is comprised of the Incomplete Words and the Sound Blending subtests from the WJ III COG as well as the Sound Awareness subtest from the WJ III ACH. The Sound Blending and the Incomplete Words subtests are both auditory processing measures which assess phonemic awareness (Woodcock, et al., 2001b).

These two subtests constitute the Phonemic Awareness cluster. The addition of the Sound Awareness subtest bolsters the breadth of the PA3 cluster so that it measures several different types of phonological knowledge, including awareness of words, rhymes, syllables, and phonemes (Woodcock, et al., 2001a, 2001b).

Sound Blending. The Sound Blending subtest of the WJ III COG is an auditory processing test which assesses coding skills in synthesizing phonemes or language sounds. The subtest requires the participant to listen to syllables (phonemes) and then to blend them into a single word (Woodcock, et al., 2001b). Test-retest reliability for Sound Blending ranges from .90 to .93 for children 3 to 5 years of age (McGrew & Woodcock, 2001).

Incomplete Words. The Incomplete Words subtest of the WJ III COG is a measure of auditory processing which assesses auditory closure and auditory analysis. These specific aspects of phonemic awareness and phonemic coding are measured by having the examinee listen to a recording of a word with one or several phonemes missing and then requesting that they verbalize the complete word (Woodcock, et al., 2001b). The test-retest reliability for children ages 3 to 5 years ranges from .83 to .89 (McGrew & Woodcock, 2001).

Sound Awareness. The Sound Awareness subtest of the WJ III ACH measures multiple aspects of phonological awareness related to manipulating sounds. The subtest is divided into several skills, including rhyming, deletion, substitution, and reversal. Items on the overall subtest and the individual skill sections become increasingly difficult. Rhyming proficiency is assessed as the examinee provides a word orally that rhymes with a word that is presented verbally by the examiner. Initially, the rhyming

section requires the child to point to the answer using a visual stimulus. The deletion section requires the child to eliminate a letter sound or part of a compound word to create a new word. In the substitution section, the examinee is asked to replace a letter, word, or ending of a word to make a new word. Finally, the reversal section involves reversing letter sounds or words (Woodcock, et al., 2001b). The reliability coefficients for 4 - to 5-year-olds is between .71 to .85 (McGrew & Woodcock, 2001). Data were not available regarding the test-retest reliability for 3-year-olds in the technical manual for this subtest, however, the overall median test-retest reliability for the Sound Awareness subtest is .81 (Schrank, McGrew, & Woodcock, 2001).

Basic Reading Skills Cluster. The Basic Reading Skills Cluster of the WJ III ACH is a combination of the Word Attack and the Letter-Word Identification subtests. The cluster is a summative assessment of word identification as well as phonemic and structural analysis skill application when presented with unfamiliar words (Woodcock, et al., 2001a).

Letter-Word Identification. The Letter-Word Identification subtest from the WJ III ACH measures skills associated with identifying words. The examinee is not asked to provide the meaning for the words identified; however, the words must be correctly pronounced. Initially, the child is required to label large-print letters presented visually. Then the child is instructed to read words presented in isolation. The words become increasingly difficult and obscure (Woodcock, et al., 2001a). The test-retest reliability for the Letter-Word Identification subtest for 3- to 5-year-olds ranges from .97 to .99 (McGrew & Woodcock, 2001).

Word Attack. The Word Attack subtest from the WJ III ACH measures the application of structural and phonic analysis skills within the pronunciation of printed non-words. The letters which comprise the words are phonetically consistent with patterns used in the English language. The child must initially generate sounds for single letters. As the items increase in difficulty, the examinee is required to translate the graphemes to phonemes by reading combinations of letters (Woodcock, et al., 2001a). The test-retest reliability after a one-year interval for 4- and 5-year-olds ranges from .93 to .94 on the Word Attack subtest (McGrew & Woodcock, 2001). Data were not available regarding the test-retest reliability for 3-year-olds in the technical manual for this subtest, but the overall median test-retest median test-retest reliability for the Word Attack subtest is .87 (Schrank, et al., 2001).

Procedure

An archival database created from the Factors Predicting Early Reading Skills in Preschool Children (FPERSPC) and the Ongoing Research: Emergent Literacy Skills Enhancement (OR ELSE) projects from 2004 through 2006 was used in the current research. Each of the two studies required preschoolers, their parents, and their teachers to participate in a number of assessments. Faculty and graduate students from Nova Southeastern's Speech and Language Department, Optometry Department, Occupational Therapy Department, and the Center for Psychological Studies worked collaboratively to conduct the research. Faculty members from each participating department trained the students on the administration, scoring, and interpretation of the respective assessments. Supervision by graduate school faculty members was on-going and ensured the proficiency of administration, scoring, and interpretation of all instruments.

All preschool teachers and families at both the publicly subsidized and the private schools were invited to be a part of these research projects at the initiation of each academic year. The parents of all children three years of age or older who were enrolled in the two preschools were solicited in writing using flyers which were distributed in the children's cubbies. To answer questions associated with participation with each study, an informational session was held at each of the preschools. If parents indicated they were interested in participating, a consent form was provided to be signed and returned to the classroom teacher. Furthermore, parents were informed that their participation was voluntary, assured of the confidentiality of test results, and reminded of the option to withdraw their child at any time during the research. Parents were provided phone numbers for each of the investigators in the event that questions regarding the study arose.

Parents were provided with several documents to complete at home and to return to the child's teacher in a sealed envelope with their signed consent form. These included the Demographics Questionnaire and the Stony Brook Family Reading Survey (SBFRS), which contained information regarding demographics as well as home literacy practices. Within the Demographics Questionnaire, the Crowne-Marlowe Social Desirability Form was embedded in order to determine the tendency for parents to respond in a socially desirable manner. This form also inquired about family information, such as parental education and medical problems. The Self-Help and Social Development Scales of the Developmental Indicators for the Assessment of Learning-Third Edition (DIAL-3) were included in the packet to acquire information regarding the social functioning of the preschool child.

Teachers were informed of the study prior to the initiation of the academic year by the Principal Investigators of the initial studies who discussed research during the school staff meetings. Teachers who agreed to participate in the studies were provided consent forms. They were also asked to complete the Teacher Rating of Oral Language and Literacy (TROLL) for each research participant in their classes. The teacher observation rating scale was given to assess academic competency of the preschooler in areas essential to acquiring literacy. The scale included questions about language, reading, and writing skills. Information about the rater's education and years of teaching experience was also collected. The teachers completed the form at their convenience and returned it in a sealed envelope to the research coordinator.

In preparation for both research studies, graduate students from the Speech and Language Department, the Optometry Department, the Occupational Therapy Department, and the Center for Psychological Studies were trained on the DIAL-3 by faculty members. Standardized training tapes from the American Guidance Service, Inc., were utilized to ensure competency in administration. Licensed psychologists also trained psychology students from the Center for Psychological Studies on the administration, scoring, and interpretation of other measures. Supervision by psychology graduate school faculty members was on-going and ensured the proficiency of administration, scoring, and interpretation of all instruments. The test training included the Woodcock-Johnson III, Tests of Cognitive Ability and Tests of Achievement, Get Ready to Read! (GRTR!), and the Preschool Comprehensive Test of Phonological and Print Processing (Pre-CTOPP).

Multidisciplinary teams composed of psychology, speech therapy, optometry, occupational therapy, and education faculty and graduate students conducted the vision, hearing, and developmental screenings. The vision screening included the following assessments: The Random Dot E Stereo Test, the Hirschberg Corneal Light Reflex Test, the Simultaneous Red Reflex Test (Bruckner Test), the Cover Test, refraction testing, the Color Vision Testing Made Easy Test, and the Southern California College of Optometry (SCCO) 4+ System for Oculomotility. The Pure Tone Audiometric Hearing Test and the Middle Ear Function Test comprised the hearing screening.

The Factors Predicting Early Reading Skills in Preschool Children project required psychology graduate students to administer the DIAL-3, WJ-III subtests, Pre-CTOPP, and GRTR! to participants at both schools. However, the Pre-CTOPP was in the standardization phase of development during the first study, and it was eventually deemed too long and challenging to administer in addition to the other measures. Thus, during the OR ELSE project, the Pre-CTOPP was not administered.

Both the FPERSPC and the OR ELSE studies required that the developmental screenings, the DIAL-3, and the parent rating forms be administered near the beginning of the school year. The WJ-III subtests and other measures of pre-literacy development were administered during the latter part of the academic year, seven to eight months later. During the 2005-2006 research year, graduate students were trained by faculty investigators and the curriculum author, Dr. Angela Notari-Syverson in the Ladders to Literacy curriculum. Half of all classes at both preschools were randomly assigned to receive scaffolded instruction in the Ladders to Literacy curriculum in small groups for approximately 1 hour per week. Teachers who instructed the control classes received

assistance in their classroom by graduate students for approximately 1 hour per week. Analysis of data indicated that there were no significant differences between the experimental and control groups in their performance.

Feedback was provided to each participant's caregiver in collaboration with the child's teacher following completion of the developmental screenings. If a child was flagged for being at-risk on the vision or hearing screenings, in one or more areas on the DIAL-3, or on the parent and teacher ratings, the caregiver was linked to community resources for follow-up evaluations at the parents' discretion. Additionally, children who did not pass the hearing and/or vision exams were excluded from the analyses.

After feedback and recommendations for follow-up were given to caregivers during the initial studies, the data were stripped of identifying information, and numerical coding was used in order to preserve confidentiality. Identification numbers were assigned to participants and used on all of the collected data. Information relating the identification numbers to individual participants was exclusively accessible to the Principal Investigator of the FPERSPC and OR ELSE studies; the mostly de-identified data will be accessed only by the Principal Investigator and co-investigators (i.e., the dissertation committee members) of the present study. The birthdates of the participants are the only pieces of identifying information that were available in this investigation. These birthdates were only used to determine the ages for data entry and analyses. Following calculation of their age, the birthdate data were deleted. None of the participants were identified in reports related to the study. The research staff members completed the Collaborative Institutional Training Initiative (CITI) course in Protection of Human Subjects Training/Education. The present study was approved by Nova

Southeastern University's Institutional Review Board (IRB) through expedited review (Protocol No.: Fins 2011-12). The NSU IRB complies with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CAR 46) revised June 18, 1991.

CHAPTER IV

Results

Data analyses were conducted using the Statistical Package for the Social Sciences (SPSS) Version 19.0. A series of exploratory factor analyses with a principal components extraction method was used to analyze the interrelationships among the variables on the Stony Brook Family Reading Survey (SBFRS) and to explain these variables in terms of their common underlying dimensions. Information gleaned from the factor analyses was used to determine psychometric properties of the family reading dimensions. A series of stepwise multiple regression analyses of factor scores on the SBFRS and the Woodcock-Johnson III (WJ-III) were conducted to evaluate the family reading behavior dimensions as predictors of emergent literacy skills in preschool children on the Basic Reading (BRS) and Phonemic Awareness 3 (PA3) Clusters.

Child Demographic Characteristics

Out of the 368 participants who met the criteria for the initial Factors Predicting Early Reading Skills in Preschool Children (FPERSPC) and the Ongoing Research: Emergent Literacy Skills Enhancement (OR ELSE) projects (173 boys, 195 girls, age range 3-5 years), 165 subjects (73 boys, 92 girls) were included in first phase of the current study (i.e., Hypothesis 1) because all of these preschool participants passed the hearing and vision screenings and because their parents completed and returned the Stony Brook Family Reading Survey as well as the Demographic Questionnaire. Participants for the second phase of data analysis (i.e., Hypotheses 2 and 3) were selected from the 165 subjects who meet initial FPERSPC and OR ELSE criteria as well as the additional SBFRS criteria. The select group of 95 participants (42 boys, 53 girls) was included in the second phase of analyses because participants' parents completed the Demographic

Questionnaire and the SBFRS and because the preschool participants completed the selected subtests of the Woodcock-Johnson III (WJ III).

Demographic data, including age, gender, school, and ethnicity, were collected for all children who participated in the study. These data are presented in Table 1. Prior to the analyses, the data were examined for missing values, outliers, and assumptions of the statistical model to ensure accuracy of analyses.

Table 1

Child Demographics

	Hypotheses		
	Hypothesis 1 (N=165)	Hypothesis 2 (N=95)	Hypothesis 3 (N=93)
Age in Months			
Mean	48.55	51.24	51.25
SD	8.05	8.07	8.09
Range	36-67	36-67	36-67
Gender Percentage			
Female (n)	55.8 (92)	51.6 (49)	51.6 (48)
Male (n)	44.2 (73)	48.4 (46)	48.4 (45)
School Attendance Percentage			
Private Preschool (n)	66.7 (110)	76.8 (73)	76.3 (71)
Public Preschool (n)	33.3 (55)	23.2 (22)	23.2 (22)
Ethnicity Percentage			
Caucasian (n)	51.5 (85)	57.9 (55)	58.1 (54)
African American (n)	26.1 (43)	17.9 (17)	16.2 (16)
Hispanic (n)	11.5 (19)	12.6 (12)	12.6 (12)
Haitian (n)	4.8 (8)	6.3 (6)	6.3 (6)
Caribbean Islander (n)	1.2 (2)	0	0
Other (n)	4.8 (8)	5.3 (5)	5.3 (5)

Hypothesis 1

On the Stony Brook Family Reading Survey (SBFRS), it is hypothesized that there will be at least three orthogonal factors which have eigenvalues above 3.0.

An exploratory factor analysis (EFA) which used a principal component analysis extraction method, was conducted to analyze the interrelationships among the variables on the Stony Brook Family Reading Survey (SBFRS). The EFA was selected to explain these variables in terms of their common underlying dimensions. Consistent with Hypothesis 1, there were three orthogonal factors which had eigenvalues above 3.0 in the initial, baseline analysis. Eigenvalues above 3.0 were hypothesized for the baseline factor structure to account conservatively for the most amount of variance.

Several items were eliminated prior to conducting any analyses. The SBFRS demographic questions 25, 26, and 27 involve information about country of origin, and racial/ethnic identity of parents and spouses. They were eliminated from the survey prior to the initial EFA in order to focus specifically on family reading and linguistic behaviors. Further, questions 30 and 31 ask about the English fluency of parents who do not consider English to be their native language. These questions were also eliminated prior to the initial analysis because they are not applicable to all parents. With these items eliminated, and several other items dummy-coded, 58 SBFRS items were entered into the first EFA with 165 participants.

Z-scores were calculated for the SBFRS items and then used in the exploratory principal component analysis so that all items would have similar ranges of scores for the calculation of total scores for each factor. A varimax rotation was used in order to maximize the sum of the variance of the squared loadings. As hypothesized, three factors

were extracted and only factors with eigenvalues greater than 3.0 were considered for the baseline factor structure based on Cattell's Scree Test (see Table 2 for factor loadings). According to the recommended minimum of a 5 to 1 ratio of participants to variables (Stevens, 2002), this baseline EFA did not meet the minimum number of subjects required for a factor analysis. As a result, items with factor loadings below .4 were eliminated and a second EFA was completed with a varimax rotation, using a principal component analysis extraction method.

Table 2

*Factor Loadings for Exploratory Factor Analysis With Varimax Rotation of Stony Brook Family Reading Survey for 58 items retained (*N = *165)*

	Factor 1	Factor 2	Factor 3
Stony Brook Family Reading Survey Question	Home Reading Emphasis	Adult Responsibility	Parental Academic Expectations
How many years of schooling have you completed	**0.66**	-0.14	
How often does someone read a picture book with your child?	**0.65**	-0.17	-0.19
If your child is read to how much does he enjoy it?	**0.61**		
How often does your child ask to be read to?	**0.54**		
About how many picture books do you have at home?	**0.53**	-0.11	-0.23
At what age did you or another family member begin to read to your child?	**-0.52**	0.15	
How many children in your family are older than your preschooler?	**-0.52**		
How many minutes did someone read to your child yesterday?	**0.50**	-0.13	
How much does your spouse enjoy reading?	**0.48**	0.24	0.17
How much trouble did you have with reading when you were in school?	**-0.45**	-0.18	-0.32
How much time per day does your child spend watching tv?	**-0.43**		0.34
How many children in your family have had problems in school?	**-0.41**		
How often does your child look at books herself?	0.35		0.11

Stony Brook Family Reading Survey Question	Factor 1 Home Reading Emphasis	Factor 2 Adult Responsibility	Factor 3 Parental Academic Expectations
How many children in your family are younger than your preschooler?	-0.34	0.11	
What is your relationship to the preschool child? ***not biological relative***	-0.33	-0.15	
Who do you think is more responsible for the development of a child's creativity? teacher or ***parent***	0.24		0.20
Who do you think is more responsible for making sure a child is healthy? school or ***parent***	0.22		
How well behaved is your preschool child?	-0.16	-0.10	
At what age did your child say his 1st words?	0.14	-0.11	
How would you describe your typical week?	-0.13		-0.10
Who do you think is more responsible for the development of a child's creativity? child or ***teacher***		**0.62**	-0.10
Who do you think is more responsible for making sure a child will fit in with other children in school? ***parent*** or child	-0.11	**-0.60**	-0.13
Who do you think is more responsible for making sure a child will fit in with other children in school? child or ***teacher***		**0.58**	
Who do you think is more responsible for the development of a child's creativity? ***parent*** or child	0.24	**-0.56**	
Who do you thing is more responsible for a child learning to read? ***teacher*** or child	0.18	**-0.55**	
Is English your spouses' native language?		**-0.51**	0.25
Who do you thing is more responsible for a child learning to read? child or ***parent***		**0.51**	
How much do you expect your child to enjoy high school?	0.18	**0.47**	0.21
Who do you think is more responsible for making sure a child is successful in school? child or ***parent***	-0.12	**0.41**	0.20
Who do you think is more responsible for making sure a child in successful in school? ***teacher*** or child		-0.40	
How much do you expect your child to enjoy elementary?	0.31	0.35	0.28
How much do you enjoy reading?	0.32	0.32	

Stony Brook Family Reading Survey Question	Factor 1 Home Reading Emphasis	Factor 2 Adult Responsibility	Factor 3 Parental Academic Expectations
What language is usually spoken at home? Not English, Spanish or French		0.27	-0.22
How much did you enjoy school?	0.24	0.27	0.20
Who do you think is more responsible for making sure a child is successful in school? ***parent*** or teacher		-0.24	-0.23
How often do you go to the library with your child?	0.13	0.14	
What is your relationship to the preschool child? Grandparent			
What grade do you expect your child to get in reading?		0.22	**0.69**
What grade do you expect your child to get in spelling?		0.33	**0.66**
What grade do you expect your child to get in math?	0.15	0.20	**0.61**
What language is usually spoken at home? ***English***	-0.21	-0.35	**0.50**
What language is usually spoken at home? ***Spanish***	0.21	0.22	**-0.45**
What is your relationship to the preschool child? ***Father***	-0.16		**0.41**
What grade do you expect your child to get in conduct?		0.22	0.38
Who do you thing is more responsible for a child learning to read? ***parent*** or teacher			-0.36
What is your relationship to the preschool child? ***Mother***	0.24	0.13	-0.35
How many minutes per day do you spend reading?	0.33		0.34
How many hours of the day are you out of the home?			0.31
How much time per day do you spend watching tv?	-0.28	-0.29	0.29
Have you ever been worried that your child's speech isn't developing normally	-0.11	-0.25	-0.27
Who do you think is more responsible for teaching a child new words? teacher or parent	0.11		0.23
Is English your native language?		-0.19	0.23
Who do you think is more responsible for making sure a child will fit in with other children in school? teacher or ***parent***	0.14	-0.13	0.22

Stony Brook Family Reading Survey Question	Factor 1 Home Reading Emphasis	Factor 2 Adult Responsibility	Factor 3 Parental Academic Expectations
Has your child ever been troubled by ear infections or had ear pains?	0.16		-0.17
How many adults live in the same house with the preschool child?	0.14		-0.17
How often does your child watch educational programs?			0.16

Note. Factor loadings above .4 are in boldface and information that helps to clarify the nature of a question when sign of factor loading is taken into account is in italic boldface.

The factorability of the second EFA was examined using several well-known criteria. According to the recommended minimum of a 5 to 1 ratio of participants to items (Stevens, 2002), the second EFA satisfied the minimum number of participants required for a factor analysis using 28 items. With the sample size of 165 (replacing missing values with the mean), the ratio was over 5 cases per variable. The communalities of the variables included are rather low overall, which may indicate that some of the variables do not share as much common variance with the other factors as would have been preferred. However, the Kaiser-Meyer-Olkin measure of sampling adequacy was .713, above the commonly recommended value of .6, which indicated that the sample was adequate to proceed with the analysis. Additionally, Bartlett's test of sphericity was significant [$\chi 2$ (378) = 1417.96, $p < .001$], which means that the r-matrix was not an identity matrix; thus, there are some relationships among the variables included in the analysis. Based on these overall indicators, a factor analysis was deemed to be suitable using all 28 items.

A three factor solution was preferred because of (a) theoretical support based on previous studies, (b) the 'leveling off' of eigenvalues on the scree plot after three factors, and (c) the insufficient number of primary loadings and difficulty of interpreting the

fourth factor and subsequent factors. The total cumulative variance explained by the solution was 38.43%, and the three factors individually accounted for 16.3%, 12.1%, and 10.2% of the variance respectively when a varimax rotation was implemented to account for the greatest amount of variance. A total of three more items with factor loadings below .4 were eliminated, and then factor scores were created for each participant using z-scores. The 28 items which were included in the second factor analysis, their respective factor loadings, and their factor names can be seen in Table 3.

Table 3

*Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Stony Brook Family Reading Survey for 28 Items Retained (*N = *165)*

	Factor 1	Factor 2	Factor 3
Stony Brook Family Reading Survey Question	Home Reading Emphasis	Adult Responsibility	Parental Academic Expectations
How many years of schooling has your spouse completed?	**0.77**		
How many years of schooling have you completed?	**0.70**	-0.15	
How often does someone read a picture book with your child?	**0.66**	-0.13	-0.17
If your child is read to how much does he enjoy it?	**0.60**		
About how many picture books do you have at home?	**0.60**		-0.22
At what age did you or another family member begin to read to your child?	**-0.55**	0.13	
How many children in your family are older than your preschooler?	**-0.55**		
How many minutes did someone read to your child yesterday?	**0.53**	-0.11	
How often does your child ask to be read to?	**0.53**		
How much does your spouse enjoy reading?	**0.49**	0.21	0.23
How many children in your family have had problems in school?	**-0.47**		

Stony Brook Family Reading Survey Question	Factor 1 Home Reading Emphasis	Factor 2 Adult Responsibility	Factor 3 Parental Academic Expectations
How much time per day does your child spend watching tv?	**-0.46**		0.27
How much trouble did you have with reading when you were in school?	-0.39	-0.19	-0.30
Who do you think is more responsible for the development of a child's creativity? child or ***teacher***		**0.68**	
Who do you think is more responsible for the development of a child's creativity? ***parent*** or child	0.20	**-0.66**	
Who do you thing is more responsible for a child learning to read? ***teacher*** or child	0.14	**-0.62**	
Who do you think is more responsible for making sure a child will fit in with other children in school? ***parent*** or child		**-0.61**	-0.13
Who do you thing is more responsible for a child learning to read? child or ***parent***		**0.60**	
Who do you think is more responsible for making sure a child will fit in with other children in school? child or ***teacher***		**0.59**	
Is English your spouses' native language?		**-0.51**	0.24
Who do you think is more responsible for making sure a child is successful in school? child or ***parent***	-0.16	**0.41**	0.17
How much do you expect your child to enjoy high school?		0.36	0.22
What grade do you expect your child to get in reading?		0.20	**0.81**
What grade do you expect your child to get in spelling?		0.28	**0.79**
What grade do you expect your child to get in math?	0.13	0.13	**0.74**
What language is usually spoken at home? ***Spanish***	0.26	0.28	**-0.50**
What language is usually spoken at home? ***English***	-0.22	-0.34	**0.48**
What is your relationship to the preschool child? Father	-0.10		0.31

Note. Factor loadings above .4 are in boldface and information that helps to clarify the nature of a question when sign of factor loading is taken into account is in italic boldface.

Internal consistency for each of the factors was examined using Cronbach's alpha. The alphas were at least adequate: .83 for Home Reading Emphasis (12 items), .75 for Adult Responsibility (8 items), and .73 for Parental Academic Expectations (5 items). See Table 4 for the descriptive statistics for the factors extracted from 28 items from the SBFRS.

Table 4

Descriptive Statistics for the factors extracted from 25 items from the Stony Brook Family Reading Survey (N=165)

Factor	Number of items	M (SD)	Skewness	Kurtosis	Cronbach's α
Factor 1: Home Reading Emphasis	12	0.5 (7.01)	-1.39	1.5	0.83
Factor 2: Adult Responsibility	8	.19 (4.74)	0.4	-0.1	0.75
Factor 3: Parental Academic Expectations	5	.02 (3.5)	-1.76	3.7	0.73

The skewness and kurtosis were well within a tolerable range for assuming a normal distribution. Overall, these analyses indicated that three distinct factors underlie the SBFRS, and these factors were moderately internally consistent. An approximately normal distribution was evident for the composite score data in the current study; thus, the data were well-suited for parametric statistical analyses.

Overall, the information gleaned from the EFA was used to determine psychometric properties of the family reading dimensions. Total factor scores based on the second factor analysis and calculated without regard to factor loadings were used in the subsequent analyses. These composite factor scores were created for each participant by summing the z-scores corresponding to all items loading on a factor. If an item yielded a negative factor loading, the z-score of the item was subtracted rather than added because the item was negatively related to the factor.

Hypothesis 2

Each of the SBFRS rotated factors considered together in a stepwise multiple regression analysis will contribute significantly to the prediction of phonological awareness as measured by the raw scores of the Phonemic Awareness 3 cluster from the Woodcock-Johnson III (WJ III) when age is considered as a covariate.

A stepwise multiple regression analysis was conducted with the factor scores from the SBFRS and raw scores from the Phonemic Awareness Cluster (PA3) of the Woodcock-Johnson III (WJ III) to evaluate the family reading behavior dimensions as a predictor of emergent literacy skills in preschool children. Age, calculated based on January 1 of the respective year in which testing occurred, was forced into the regression in the first block of the analysis as a covariate.

The hypothesis was supported. Each of the SBFRS rotated factors considered together in a stepwise multiple regression analysis contributed significantly to the prediction of phonological awareness as measured by PA3 from the WJ III
[WJ III PA3 = .71 +.87(Factor1) -1.04(Factor3) -.52(Factor2)]. The three-factor model was significant [$F (4, 90) = 16.33$, $p<.001$]. After Age in Months was entered as a covariate, the best subset of predictors for PA3 of the WJ III, in order of stepwise entry, included the independent variables Factor 1: Home Reading Emphasis, Factor 3: Parental Academic Expectations, and Factor 2: Adult Responsibility.

In total, the three home literacy factors accounted for 27.2% of the variance over and above the covariate, Age in Months, and they accounted for more variance than the covariate alone. Age in Months accounted for 15.5% of the variance in the PA3 raw scores. Factor 1 accounted for 16.7% of the variance in the dependent variable after age

was taken into account. Factor 3 was entered into the model next and accounted for 7% of the variance over and above Factor 1 after age was considered. Factor 2 was entered last into the model and accounted for 3.5% of the variance over and above Factors 1 and 2 after age was taken into account. See Table 5 for further details.

Table 5

Stepwise Multiple Regression Analysis Predicting the Phonemic Awareness 3 Cluster of the Woodcock-Johnson III from Stony Brook Family Reading Survey Factors

Predictor		b	ΔF	Significance	R^2	ΔR^2	Effect Size
Enter							
Step 1	Age in Months	.71	17.07	< .000	.16	.16	Large
Step 2	Factor 1: Home Reading Emphasis	.87	22.61	< .000	.32	.17	Large
Step 3	Factor 3: Parental Academic Expectations	-1.04	10.39	.002	.391	.07	Moderate
	Factor 2: Adult Responsibility	-.52	5.53	.021	.43	.04	Small

The minimum ratio of valid cases to independent variables for stepwise multiple regression is 5 to 1. With 95 valid cases and 4 independent variables, the ratio for this analysis is 23.75 to 1, which satisfies the minimum requirement. However, the ratio of 23.75 to 1 does not satisfy the preferred ratio of 50 to 1, so a caution should be added to

the interpretation of the analysis. Having satisfied the level of measurement and sample size requirements, normality, linearity, and homoscedasticity were examined.

Based on the results in the ANOVA table, ($F(4, 90) = 16.73$, $p < .001$), there was an overall relationship between the dependent variable, PA3 from the WJ III, and one or more of independent variables. Since the probability of the F statistic ($p < 0.001$) was less than or equal to the level of significance (0.05), the null hypothesis that the Multiple R for all independent variables was equal to 0 was rejected. The purpose of the analysis, to identify a relationship between some of independent variables and the dependent variable, was supported. The Multiple R for the relationship between the subset of independent variables that best predict the dependent variable is .65, which would be characterized as strong. However, the strength of the correlation is partially due to the effect of the covariate (i.e., Age in Months). The difference in the correlation between the regression model with only Age in Months (R=.39) and the regression model with all four independent variables (R=.65) is .26, which demonstrates the impact of the covariate on the correlation of the overall regression model with the dependent variable.

The dependent variables (i.e., PA3 and BRS from the WJ III) and the independent variables (i.e., Age in Months as well as Factors 1, 2, and 3 from the SBFRS) generally met the criteria for normal distribution. This is evidenced by the skewness and the kurtosis of the distributions of the independent and dependent variables displayed in Table 6. There were no significant outliers.

Table 6

Frequencies of Variables for Hypothesis 2 (N=95)

Variables	N	M (SD)	Skewness	Kurtosis
Factor 1: Home Reading Emphasis	95	1.54 (5.99)	-1.52	2.7
Factor 2: Adult Responsibility	95	.03 (4.62)	0.38	-0.03
Factor 3: Parental Academic Expectations	95	.02 (3.22)	-1.41	1.62
Age in Months	95	51.25 (8.07)	1.07	1.06
Phonemic Awareness 3	95	33.11 (12.19)	.224	-0.678

Tests for multicollinearity for Hypothesis 2 indicated that a low level of multicollinearity was present (tolerance = .95, .96, 1, and .99) for Age in Months, Factor 1: Home Reading Emphasis, Factor 2: Parental Academic Expectations, and Factor 3: Adult Responsibility, respectively. The Durbin-Watson statistic that assesses the assumption of independence is .967 which is within normal limits. Additionally, the scatter plots of the standardized residuals vs. the predicted residuals were indicative of overall, tenable regression assumptions.

Hypothesis 3

Each of the SBFRS rotated factors considered together in a stepwise multiple regression analysis will contribute significantly to the prediction of basic reading as measured by the raw scores of the Basic Reading Skills cluster of the WJ III when age is considered as a covariate.

A stepwise multiple regression analysis was conducted with the factor scores from the SBFRS and raw scores from the Basic Reading Skills Cluster of the Woodcock-Johnson III (WJ-III) to evaluate the family reading behavior dimensions as a predictor of emergent literacy skills in preschool children. Age, calculated based on January 1 of the respective year in which testing occurred, was forced into the regression in the first block of the analysis as a covariate.

The hypothesis was partially supported. Only one of the SBFRS rotated factors considered together in a stepwise multiple regression analysis contributed significantly to the prediction of basic reading as measured by the BRS cluster of the WJ III [WJ III BRS = .38 + .26(Factor1)]. The one-factor model was significant [$F(2, 90) = 15.90$, $p < .001$]. After Age in Months was entered as a covariate, the best subset of predictors for the Basic Reading Skills Cluster of the WJ III included only the independent variable, Factor 1: Home Reading Emphasis.

Age in Months accounted for 20.4% of the variance in the BRS raw scores. Factor 1 accounted for 5.8% of the variance in BRS when age was taken into account. See Table 7 for further details.

Table 7

Stepwise Multiple Regression Analysis Predicting the Basic Reading Skills Cluster of the Woodcock-Johnson III from Stony Brook Family Reading Survey Factors (N=93)

	Predictor	b	ΔF	Significance	R^2	ΔR^2	Effect Size
Enter Step 1	Age in Months	.38	23.26	< .001	.20	.20	Large
	Factor 1: Home Reading Emphasis	.26	7.01	.01	.26	.06	Large

Based on the results in the ANOVA table, [F (2, 90) = 15.90, p < .001], there was an overall relationship between the dependent variable, Basic Reading Skills Cluster from the WJ III, and one or more of the independent variables. Since the probability of the F statistic (p < .001) was less than or equal to the level of significance (0.05), the null hypothesis that the Multiple R for all independent variables was equal to 0 was rejected. The purpose of the analysis, to identify a relationship between some of the independent variables and the dependent variable, was supported with only one independent variable.

The Multiple R for the relationship between the subset of independent variables that best predict the dependent variable is .55, which would be characterized as large. However, this value is somewhat misleading, since the Age in Months, the covariate, also contributes to this correlation. The difference in the correlation between the regression model with only Age in Months (R=.45) and the regression model with both Age in Months and Factor 1 (R=.55) is .1, which demonstrates the impact of the covariate on the correlation of the independent variables with the dependent variable.

The minimum ratio of valid cases to independent variables is similar to that of the previous hypothesis. Having satisfied generally the level of measurement and sample size requirements, normality, linearity, and homoscedasticity were examined. After the two outliers were removed, the dependent variable, the Basic Reading Skills Cluster of the WJ III, generally satisfied the criteria for a normal distribution. See Table 8 for the frequency distributions of the independent and dependent variables for Hypothesis 3.

Table 8

Frequencies of Variables for Hypothesis 3 (N=93)

Variables	N	M (SD)	Skewness	Kurtosis
Factor 1: Home Reading Emphasis	93	1.44 (6.02)	-1.50	2.60
Factor 2: Adult Responsibility	93	-.04 (4.62)	.39	.01
Factor 3: Parental Academic Expectations	93	.22 (3.24)	-1.41	1.56
Age in Months	93	51.25 (8.09)	-.07	-1.06
Basic Reading Skills Raw Score	93	12.03 (12.00)	.594	.92

Analyses indicated that only a low level of multicollinearity was present for Age in Months (tolerance = .96) and for Factor 1: Home Reading Emphasis (tolerance=.96). The Durbin-Watson statistic that assesses the assumption of independence is 1.73, which is in an acceptable range. The scatter plot of the standardized residuals versus the predicted residuals was indicative of tenable regression assumptions.

CHAPTER V

Discussion

Children delayed in learning reading fundamentals prior to elementary school demonstrate lifelong academic problems (Invernizzi, et al., 2010; Whitehurst & Lonigan, 2002). Successful early reading practices are associated with reduced criminal behavior, social difficulties, and overall behavioral problems in adolescence (Lonigan & Shanahan, 2008; Shanahan, 2008; Strickland & Riley-Ayers, 2006). In fact, in our information - driven society, overall career and life success is strongly correlated with early reading achievement (Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], et al., 2000; Storch & Whitehurst, 2001; Strickland & Riley-Ayers, 2006; Whitehurst, 2011). However, not all children begin kindergarten with the same level of preparation and motivation for reading, because their home and school literacy environments vary greatly (Burgess & Lonigan, 1998; Lonigan, Escamilla, et al., 2008; R. D. Phillips, et al., 2010; Shanahan, 2008; Snow, et al., 1998; Stobbart & Alant, 2008; Storch & Whitehurst, 2001).

Investigation of the home literacy environment (HLE) is essential because the home is typically the first place in which a child is exposed to language and has the chance to observe, to discover, and to engage in literacy-related activities (Bracken & Fischel, 2008; DeBaryshe, et al., 2000). Unfortunately, children often do not receive assessment or intervention for reading problems until primary school. If they are lucky enough to be assessed early, reading skills evaluations often focus on pre-reading and conventional reading skills and not the components of home literacy practices which

influence the development of these skills, since they are more difficult to study (Justice, 2006; Snow, et al., 1998).

Although the development of oral language skills has been a major focus of previous research relating to home literacy environments, the impact of oral language on later reading skills seems to be inconsistent across the literature (Storch & Whitehurst, 2002; Weigel, et al., 2005). Therefore, further research is needed to identify relationships among the myriad of other foundational reading skills, such as phonemic awareness, with specific aspects of the home literacy environment in order to empower parents, teachers, researchers, and clinicians collectively to better the children of the future (Whitehurst & Lonigan, 1998, 2002). Overall, the present study examined the home literacy habits of a sample of parents and preschool children from a combination of high- and low-income backgrounds and various ethnicities. The three dimensions of family reading behaviors that were identified using exploratory factor analyses included Home Reading Emphasis, Adult Responsibility, and Parental Academic Expectations. Analyses indicated that all of these home literacy factors, when considered together using age as a covariate, were significant predictors of PA3 on the WJ III. Home Reading Emphasis was a significant predictor of Basic Reading Skills on the WJ III. The findings are discussed below.

Hypothesis 1

On the Stony Brook Family Reading Survey (SBFRS), it is hypothesized that there will be at least three orthogonal factors which have eigenvalues above 3.0.

Exploratory factor analyses (EFA) which used a principal component analysis extraction method and a varimax rotation, were conducted to analyze the interrelationships among the variables on the Stony Brook Family Reading Survey

(SBFRS). Consistent with Hypothesis 1, there were three orthogonal factors which had eigenvalues above 3.0 in the initial, baseline analysis. There were 58 SBFRS items entered into the first EFA which was conducted with the surveys of 165 participants. In order to meet the minimum number of subjects required for a factor analysis, items with factor loadings below .4 were eliminated, and a second EFA was completed. After items with factor loadings below .4 were eliminated from the second and final EFA, 28 SBFRS items remained. The total cumulative variance explained by the final solution was 38.43%, and the three factors individually accounted for 16.3%, 12.1%, and 10.2% of the variance respectively.

The analyses indicated that three distinct factors were underlying the parent responses on the SBFRS items and that internal consistency of each of these factors was at least adequate. The three factors included Factor 1: Home Reading Emphasis (12 items), Factor 2: Adult Responsibility (8 items), and Factor 3: Parental Academic Expectations (5 items). The items clustered in a way that was consistent with overall themes within current research about the home literacy environment, and the factors were labeled to describe these patterns. However, the present study differs slightly from previous studies that included the SBFRS, since those studies only used between 9 and 12 questions in total from the survey.

The items from the questionnaire that were chosen for factor analysis in previous SBFRS studies only included information about shared reading frequency and duration of the sessions, age when the parent began reading to the child, frequency with which the child asks parents to read to him or her, the child's enjoyment of reading, frequency of library visits, independent child literacy activities, duration of parents' reading

independently, and parental enjoyment of reading (Bracken & Fischel, 2008; Dodici, et al., 2003; Rush, 1999; Stoltz & Fischel, 2003; Storch & Whitehurst, 2001; Weigel, et al., 2005). Bracken and Fischel (2008), who explored concepts extremely similar to those in the present study, found that the aforementioned questions clustered into three factors, which included Child Reading Interest, Parent Reading Interest, and Parent-Child Reading Interaction. These three dimensions adequately summarize the contents of Factor 1: Home Reading Emphasis in the current study.

Overall, the items included in Factor 1 of the present study relate to how much literacy was emphasized by preschool children and their parents in the home and seem to be an amalgam of several components discussed in previous HLE research. More specifically, this factor incorporated nearly all of the questions which were chosen in other studies that used the SBFRS. In this study, SBFRS items in Factor 1 included more years of parent education, greater child reading enjoyment, higher frequency and duration of parent-child reading interactions, earlier initiation of parent-child reading interactions, larger number of picture books in the home, and higher parent reading interest.

The results of the current study also demonstrated that the SBFRS items about parental education have the strongest positive correlation with Factor 1 when compared to all of the other questionnaire items. In other words, more years of parental schooling is strongly related to Home Reading Emphasis. Similarly, Bracken and Fischel (2008) revealed that parent education, which they classified as a demographic characteristic and did not include in the factor analysis, most highly correlated with family reading behavior, and high parent education was correlated with high parent reading interest as well with more frequent parent-child interactions. West, Denton, and Germino-Hausken

(2000) observed a comparable trend. Interestingly, in the present study, number of hours children watch television per day was highly negatively correlated with Home Reading Emphasis. One could hypothesize that the amount of time children watch television is mediated by their interest in reading. They may have less time to watch since they are likely spending a great amount of time engaging with their parents, or perhaps they have parents who model a stronger interest in reading than in television.

Some SBFRS items did not load highly enough to be included in the final factor structure for Factor 1. Previous studies with the SBFRS included items such as number of trips to the library as part of parent-child interaction within the HLE (Bracken & Fischel, 2008; Payne, et al., 1994; Rush, 1999; Stoltz & Fischel, 2003; Vukelich & Christie, 2009). However, in the current study, this item was not strongly correlated with any of the factors, including Factor 1, so it was eliminated from the final factor structure. Many previous studies indicate that shared reading experiences between parents and children increase the direct exposure to print materials, therefore increasing the overall print knowledge acquired (DeBaryshe, 1996; DeBaryshe, et al., 2000; Justice & Piasta, 2011; Sénéchal & LeFevre, 2001; Storch & Whitehurst, 2001). However, more recent research suggests that explicit verbal and non-verbal cues are even more important than shared reading alone in helping parents and children to attend to the print (Justice & Piasta, 2011; Justice, et al., 2008). Similarly, perhaps the frequency of library attendance is not as important as the child's activities while there and where their attention is directed by the accompanying adult. Overall, this finding may be an indication that it is the more direct emphasis, enthusiasm, and parent-child reading interactions that are foundational to the Home Literacy Emphasis component in the HLE.

Several items on the SBFRS are questions used to compare who is more responsible for a variety of academic and non-academic activities. Each responsibility question is repeated three times to compare parents to teachers, teachers to a child, and parents to a child. In this study, the SBFRS items that clustered together in Factor 2: Adult Responsibility, were indicative of reporting that adults (i.e., parents and teachers) are more responsible than a child for helping a child to fit in at school, to develop creativity, to learn how to read, and to make sure that a child is successful at school. The parent versus teacher responsibility items did not load strongly enough to be included in this factor; therefore, whether the parent or teacher was more responsible for these areas might not be central to the HLE, as long as an adult is considered responsible rather than the child.

There was no evidence of other studies that directly compare the responsibility of adults to that of children in relation to the home literacy environment. However, the current finding is consistent with other studies which emphasize general parental responsibility as a component of the HLE. Parents determine the way in which they integrate shared book reading and other literacy-rich activities with their children based on their beliefs and academic expectations (Burgess, et al., 2002). For example, parents who regard early literacy experiences highly often have a more facilitative style of interacting with literacy materials. In other words, they value their roles as teachers to their children and frequently provide more vast, rich literacy experiences than parents who do not have a high regard for reading (DeBaryshe, 1996; DeBaryshe, et al., 2000). The items about parent, child, and teacher responsibility for keeping a child healthy did not meet the inclusion criteria, possibly indicating that the responsibility for a child's

physical health is not closely related to the responsibility for social and academic functioning.

Another item that was included within Factor 2 involved spouses of raters for whom English was not their native language. In other words, having a non-native-English-speaking spouse was highly correlated with Adult Responsibility. Of the 165 surveys included in the factor analyses, 147 of the raters were mothers of the preschool child participant. Only 13 of the raters were fathers, three were grandparents, and two were not biologically related to the child. Only the native language of the rater's spouse loaded on this factor. The rater's native language did not load highly enough to be included in any of the factors. It might be hypothesized that paternal characteristics of non-native English speakers, including cultural values and traditions, are influential to maternal beliefs about whether adults or children are more responsible for different aspects of child adjustment and development in relation to reading. Children with a non-native-English-speaking parent might be bilingual. If that is the case, perhaps parents of those children feel particularly obligated to have adults take responsibility and assure that the child is adjusted academically and socially, since the child might have more difficulty than peers due to a language barrier. The spouse may not be completely confident with his (or her) English proficiency or with the quality of the English language modeled at home. As a result, the reporter might feel that a more active approach to learning language would be beneficial. About 76% (126 out of 165) of the surveys indicated that English was the spouse's native language. The remaining 27 raters stated that English was not the spouse's native language, and 12 left the question blank. There were no questions in the study that would indicate how many of the raters had spouses, but it

might be assumed that 12 blank replies were related to not having a spouse. Also, since the factor analysis was completed using the mean as an average for blank answers, the results might not be perfectly representative.

Factor 3: Parental Academic Expectations was composed of items that related high expectations for a child's grades in reading, spelling, and math within home environments in which Spanish is not spoken and English is spoken. This finding is somewhat difficult to interpret, because the current study focused on children whose dominant language was reported to be English, and, as a result, only a small proportion of the participants reported that Spanish was the language typically spoken in the home. Also, there were only five items in this factor which might impact the internal consistency of the factor.

Overall, emphasis on the importance of parental academic expectations is consistent with other emergent literacy research (Hammer, Miccio, & Wagstaff, 2003; Snow, et al., 1998; Stobbart & Alant, 2008; Storch & Whitehurst, 2001). For example, Storch and Whitehurst (2001) reveal that the literacy environment, in conjunction with parental academic expectations and parent characteristics (i.e., IQ and education), accounts for 40% of the variance in the outside-in skills (i.e., oral language/vocabulary) of English-speaking preschool children. They also stated that outside-in skills have a strong influence on inside-out skills (i.e., phonological awareness and print concepts) through preschool. Additionally, parents who report a higher value of literacy tend to have higher academic expectations for their children (B. M. Phillips & Lonigan, 2009; Weigel, et al., 2005, 2006).

There is a paucity of research directly linking parental academic expectations in families that predominately speak Spanish at home to English emergent literacy skills. The present study did not intend to focus on the influence of non-English speaking families, and only children whose parents reported that English is the child's dominant language were included in the analyses. However, it is apparent that language spoken in the home is related to academic expectations of parents in the population that was investigated.

When parents express high academic expectations, they demonstrate a press for achievement which is often expressed through their academically-related interactions with their children (Hammer, et al., 2003). In previous studies with both English and Spanish speaking families, parental education was an important component that influenced parent-child interactions predictive of academic success (Hammer, et al., 2011; Jiménez, Moll, Rodríguez-Brown, & Barrera, 1999; Ortiz, 2001; Storch & Whitehurst, 2001, 2002). Research also emphasizes the underlying function of parental education in relation to SES in the prediction of parent literacy expectations and practices (Hammer, et al., 2011; Jiménez, et al., 1999). Latino children are more at risk for academic failure, which is often linked to economic disadvantage (Hammer, et al., 2011; Snow, et al., 1998).

Some Spanish-speaking children are only exposed to English when they enter school, However, some parents who mainly speak Spanish at home also expose their children to English at home prior to their entering school (Hammer, et al., 2011). Hammer, et al. compared low SES bilingual preschool children who did not learn English until entering preschool to bilingual preschool children who were exposed to English

from birth. There were no significant differences between the groups in adult literacy practices, but the children exposed to English from birth had a higher frequency of engaging in parent-child literacy activities and had more books in the home, even though that frequency was low overall. The authors concluded that both groups of bilingual children performed commensurately on emergent literacy measures, likely due to the English immersion at school. However, home literacy practices did not significantly impact literacy learning. This result was likely due to the low frequency of the practices evidenced in both groups of preschoolers. Since the population in the aforementioned study was of low SES, it is unknown whether these findings were related to SES, parental education, language, or cultural differences, and whether or not they can be generalized to a higher SES population.

Caution must be used in interpreting the data for Factor 3 in this study, since 88% (i.e., 146) of the 165 respondents used in the factor analyses of the SBFRS indicated that they usually speak English at home. From the 110 participants at the private school, 95 (86%) indicated that they usually speak English at home, 10 (9%) stated that Spanish was the language spoken at home, and 5 (5%) of the parents replied that they spoke other languages. The 55 surveys from the public school were similar, as 51 parents (95%) reported that English was the dominant language at home, 1 family (approximately 2%) stated that they spoke Spanish at home, and 4 families (7%) spoke other languages. In the present study, more of the participants who spoke Spanish at home had children who attended the private school in which the families typically have, on average, higher SES than the public preschool. Therefore, since the expectations are not related to SES or even education in this study, it is difficult to determine whether the parental emphasis on

expectations is influenced by language or cultural differences. Another possible explanation of the current findings is that parents who primarily speak Spanish at home do not expect their children to be able to perform as well in an English school setting without the constant modeling of English in the home, even if English is the child's dominant language in the community or at school (Jiménez, et al., 1999).

Hypothesis 2

Each of the SBFRS rotated factors considered together in a stepwise multiple regression analysis will contribute significantly to the prediction of phonological awareness as measured by the raw scores of the Phonemic Awareness 3 cluster from the Woodcock-Johnson III (WJ III) when age is considered as a covariate.

The results supported the hypothesis. Each of the SBFRS rotated factors considered together in a stepwise multiple regression analysis contributed significantly to the prediction of phonological awareness as measured by Phonemic Awareness Cluster (PA3) of the Woodcock-Johnson III (WJ-III) when age was entered as a covariate. After Age in Months was entered as a covariate, the best subset of predictors for PA3 of the WJ III, in order of stepwise entry, included the independent variables Factor 1: Home Reading Emphasis, Factor 3: Parental Academic Expectations, and Factor 2: Adult Responsibility. These findings are consistent with previous research. However, they also contribute to the general understanding of how beliefs and expectations predict emergent literacy over and above the more direct HLE components such as parent-child interactions.

In total, the three home literacy factors accounted for 27.2% of the variance over and above the covariate, Age in Months, and they accounted for more variance than the

covariate alone. Age in Months accounted for 15.5% of the variance in the PA3 raw scores. Factor 1 accounted for 16.7% of the variance in the dependent variable after age was taken into account. Factor 3 was entered into the model next and accounted for 7% of the variance over and above Factor 1 after age was considered. Factor 2 was entered last into the model and accounted for 3.5% of the variance over and above Factors 1 and 2 after age was taken into account.

Phonological awareness is a critical auditory component in the development of reading skills (Townsend & Konold, 2010). Auditory processing measures which assess phonemic awareness, such as the PA3 cluster of the WJ III, often require blending, deleting, matching, reversing, synthesizing, or counting sound units within words (Lonigan, et al., 2009; Woodcock, et al., 2001a, 2001b). Higher ratings on Factor 1: Home Reading Emphasis best predict higher scores on the PA3 Cluster of the WJ III. This finding is consistent with research indicating that parent-child interactions which occur very early in a child's life predict the development of symbolic representation, phoneme blending, onset recognition, and phonemic analysis skills (Dodici, et al., 2003; Foy & Mann, 2003; Lonigan, et al., 2009; Rush, 1999; Scarborough & Dobrich, 1994).

Additionally, components of the HLE that have been highlighted frequently in previous studies as predictors of literacy development include parental involvement (i.e., shared reading, engaging children in conversation, and direct access to print), parent interest and child interest in reading, as well as child motivation (Britto & Brooks-Gunn, 2001; Burgess, et al., 2002; Evans, et al., 2000; Foy & Mann, 2003; Frijters, et al., 2000; Lonigan, Escamilla, et al., 2008; Payne, et al., 1994; B. M. Phillips & Lonigan, 2009; Roberts, et al., 2005; Rush, 1999; Scarborough & Dobrich, 1994; Sénéchal, 2011;

Sénéchal & LeFevre, 2001; Serpell, et al., 2002; Silinskas, et al., 2010; Skibbe, et al., 2008; Sonnenschein, et al., 2007; Sonnenschein, et al., 2000; Sonnenschein & Munsterman, 2002; Stobbart & Alant, 2008; Storch & Whitehurst, 2001; Weigel, et al., 2005, 2006). Therefore, it is not surprising that Factor 1: Home Reading Emphasis, which combines all of these concepts, accounts for more than half of the variance in the entire factor solution for PA3 of the present study.

Parental Academic Expectations, as measured by Factor 3, was entered into the equation after Factor 1: Home Reading Emphasis. Some previous studies discuss the idea that parents' expectations of children are not as related to academic performance in preschool as they are in later years, since their expectations are partly circularly related to previous academic performance (Reese, et al., 2000; Reese & Goldenberg, 1999). Yet, consistent with the small amount of extant literature, the present study demonstrates the direct prediction of phonemic awareness by academic expectations, secondary to and separate from the importance of parent-child interaction. Unexpectedly, this study predicts that English-dominant home environments along with higher parental academic expectations predict lower scores on the PA3 Cluster of the WJ III.

This finding should be interpreted with caution since the percentage of English-dominant home environments was not representative of the entire South Florida population for Hypotheses 2 and 3. More families whose children completed the WJ III at the private school than the public school also completed and returned the survey.

High parental academic expectations are often expressed through parents' direct, academically-related interactions with their children (Hammer, et al., 2003). In the current study, lower expectations for preschoolers might actually be related to a more

relaxed cultural approach to school. It might result in less pressure and a more fun-approach to the development of phonemic awareness. Sonnenschein, Baker, and Katenkamp (2007) indicated that an entertainment-focused parental belief system about learning (i.e., literacy learning should be a source of fun, playful interactions) better predicted basic reading skills in preschool children than a more didactic approach.

In general, parental expectations do directly, rather than indirectly, influence phonemic awareness, regardless of the direction of the influence (Storch & Whitehurst, 2002). Since there are no other studies which examine parental academic expectations of preschool children who are dominant in English but who primarily speak Spanish in the home, this finding has heuristic value for future research.

Further, there is little evidence of other studies that directly compare adult responsibility to child responsibility in relation to literacy development. However, Factor 2: Adult Responsibility contributed to the prediction of phonemic awareness, a finding which is consistent with, and an addition to, the literature that highlights the fact that parental beliefs generally have an impact on emergent literacy (Burgess, et al., 2002; DeBaryshe, 1996; DeBaryshe, et al., 2000; Sonnenschein, 2002; Sonnenschein, et al., 2007; Sonnenschein, Baker, Moyer, & LeFevre, 2005; Sonnenschein, Brody, & Munsterman, 1996; Sonnenschein & Munsterman, 2002).

A stronger belief in adult responsibility (and not child responsibility) actually predicted lower performance on PA3. Despite the paucity of research in this area, this does not inherently seem logical. Nevertheless, many studies discuss the benefits of teaching problem-solving to young children. It is possible that parents who teach these skills encourage their children to be more reliant on themselves to learn to read, to fit in

with other children, to develop creativity, and to succeed in school. Also, Stoltz and Fischel (2003) concluded that parents who are inactive during shared reading activities had children who performed better on measures of pre-reading. The authors expressed the belief that this occurred because the parents of the better readers might not have needed to interrupt as much, since the children made fewer reading mistakes during the observation (Stoltz & Fischel, 2003). Conceivably, parents whose children are good readers, and, therefore, often better at social skills and behavioral control, allow the children to take the lead and to assume more responsibility within various academic and non-academic arenas.

In total, many studies that measure the impact of shared reading in early childhood on later reading skills, such as those included in the NELP meta-analysis, primarily link shared reading and other parent-child interaction practices and beliefs to oral language development (Lonigan, Escamilla, et al., 2008; Lonigan, Shanahan, et al., 2008; Storch & Whitehurst, 2002). However, despite the surprising direction of the correlations, the present results are congruent with several studies which conclude that shared reading and parent-child interaction and parental beliefs are directly related to phonemic awareness development (Dodici, et al., 2003; Foy & Mann, 2003; Lonigan, et al., 2009; Rush, 1999; Storch & Whitehurst, 2002).

Hypothesis 3

Each of the SBFRS rotated factors considered together in a stepwise multiple regression analysis will contribute significantly to the prediction of basic reading as measured by the raw scores of the Basic Reading Skills cluster of the WJ III when age is considered as a covariate.

The hypothesis was partially supported. Only one of the SBFRS rotated factors considered together in a stepwise multiple regression analysis contributed significantly over and above the covariate to the prediction of basic reading as measured by the Basic Reading Skills Cluster (BRS) of the WJ III. After Age in Months was entered as a covariate, the best subset of predictors for the Basic Reading Skills Cluster of the WJ III included only the independent variable, Factor 1: Home Reading Emphasis. Age in Months accounted for 20.4% of the variance in the BRS raw scores. Factor 1 accounted for 5.8% of the variance in BRS when age was taken into account.

Age is clearly an important predictor of BRS since children clearly become more proficient with basic reading as they get older; however, it was entered as a covariate since the SBFRS scores are not standardized. The Word Attack subtest of the BRS Cluster of the WJ III measures the application of structural and phonic analysis skills and symbolic representation with the pronunciation of printed non-words. The Letter-Word Identification subtest measures letter and word recognition. Since these skills have been found to be related to parent-child interaction, and items on the SBFRS related to this are in Factor 1, it makes sense that the BRS subtest would be predicted by Factor 1 (Dodici, et al., 2003; Rush, 1999).

Both the PA3 Cluster and the BRS Cluster measure aspects of decoding skills. However, the Letter-Word Identification subtest of the BRS Cluster measures more advanced recognition of letters and words that might also entail print concepts. It is difficult to isolate which specific component of the BRS Cluster requires more parental action than thought, but it is apparent that the overall development of Basic Reading

Skills requires more parental action as opposed to a simple, indirect belief or expectation about the importance of early reading.

Importance

This study is important for several reasons. It is one of few bodies of research that examines the HLE within a population that has a variety of SES environments somewhat representative of the state of Florida. Also, only a handful of studies use the SBFRS, which is a quick and easy way to measure home literacy components. The present investigation uniquely included nearly all of the SBFRS items in the factor analyses. The delineation of components will be helpful in the understanding of what contributes to the development of literacy, and the measure can be edited based on the items that did not load strongly enough on the factor analyses for future use.

There are very few studies that investigate the concept of adult versus child responsibility or parental academic expectations in relation to the emergence of literacy skills. Moreover, the inclusion of non-native English speaking spouses and the impact of the Spanish language in these factors add an interesting new twist to incorporate and to understand. The findings, that higher expectations and adult responsibility are negatively related to phonemic awareness, is also unique in nature. These results can help to inform and to inspire researchers, educators, and parents to conceptualize HLE in a new way.

Limitations

The study's applicability is somewhat hindered by a few limitations. Data from approximately 365 children were gathered initially for the FPERSPC and the OR ELSE projects. Unfortunately, most of the parents of the preschool children in the initial sample did not complete the demographic form or the SBFRS. Even fewer of the

children whose parents did complete the survey also completed the WJ III. There were many children who completed the WJ III assessments, but whose parents did not complete the SBFRS. If this study is replicated, parents might be telephoned to seek answers to the survey questions if all of the other elements of data collection are complete in order to maximize the information gathered. In fact, it is possible that the parents who did not complete the survey are busier than the ones who did complete or that they are less likely to emphasize reading in the home. Those parents might be the ones who place more responsibility on the child with regard to literacy or whose academic expectations are lower, since completing the data forms was not a priority for them.

More of parents with children at the private school completed the SBFRS than parents with children at the public school. This was a limitation as far as the representativeness of the data collected, but the ethnicity ratios were similar to the actual South Florida population, at least for the factor analyses. If more of the sample had completed both the SBFRS and the WJ III, the information could have been further analyzed to compare differences between the schools and between different levels of SES. It would be interesting to collect enough data from participants with diverse SES backgrounds at different schools to complete separate factor analyses and then to compare the results among the schools. Though the sample met the minimum requirements for analyses, had the sample been larger, the results could have been more representative and generalizable to the community, and the factor analyses could have been stronger.

A benefit of using the SBFRS is that it is a quick and easy way to assess the HLE. However, since it is a survey, the results might be impacted by the accuracy of the reporters. It would be beneficial to assess the validity of the measure by cross checking it with an observational assessment that focuses on similar concepts. Further, effects of social desirability might have interfered with reporters' responses.

Future Directions

The sample included a very small number of children whose parents primarily spoke Spanish at home. It would be interesting to replicate and to expand this study to include larger numbers of bilingual children and children of Spanish-speaking parents. Also, most of the raters who completed the SBFRS were mothers, which is common in most of the literature surrounding emergent literacy. Collecting data from fathers would be extremely interesting and could help to elucidate the impact of the paternal role in home literacy practices. These data could be used to investigate how parental relationships impact literacy development and to compare differences between the practices of mothers and fathers.

It would be interesting and useful to standardize the SBFRS based on the factors that emerged in the present study. Standardization would entail additional research, including a wider range of SES, racial/ethnic, and linguistic groups to improve upon the SBFRS's validity and generalizability when assessing the home literacy components that impact emergent literacy skills. A more direct, observational assessment of the same home literacy concepts could help to bolster the validity of the measure as well.

Items from the SBFRS can be revised prior to the measure's being standardized. Confusingly worded questions and items that had very low factor loadings could be

edited and/or eliminated. For example, the demographic compilation of all members in the child's primary home could be stated more clearly. Additionally it would be helpful to understand the relationship of the adults in the home to one another and to the child, the relationship status and the amount of contact a child has with a parent with whom they do not live, and the language and ethnicities of all parties involved. More details could be collected about the time spent in and the composition of a secondary home if the child has parents who are not together or lives with a grandparent part time. More questions might be added to assess parental expectations and adult versus child responsibility to bolster the assessment of these important home literacy components.

The responses to all of these questions should be reworded in a way that can be easily and accurately coded. Future researchers may also benefit from adding questions to create a validity scale in the measure. Some of the items that were eliminated from the SBFRS in this study, but have been previously documented to impact literacy, should be further explored. For example, frequency of library visits can be studied using behavioral observation or more specific questions about activities and engagement that occur in the library. Finally, the SBFRS could be administered at different preschools to parents of various SES backgrounds. Then separate factor analyses could be compared among the schools to understand further the impact of SES and culture on emergent literacy.

The results of this study should be shared with parents, educators, clinicians, and researchers to further the growth of knowledge and the improvement of literacy practices for the younger generation. Perhaps if parents begin to understand the elements involved in and the importance of home reading practices during the preschool years, there will be fewer children who experience reading difficulties later in life.

REFERENCES

Ainsworth, M. S. (1979). Infant–mother attachment. *American Psychologist, 34*(10), 932-932-937. doi: 10.1037/0003-066x.34.10.932

Aram, D., & Levin, I. (2002). Mother-child joint writing and storybook reading: Relations with literacy among low SES kindergartners. *Merrill-Palmer Quarterly, 48*(2), 202-224.

Audet, D., Evans, M. A., Williamson, K., & Reynolds, K. (2008). Shared book reading: parental goals across the primary grades and goal-behavior relationships in junior kindergarten. *Early Education and Development, 19*(1), 112-137. Retrieved from http://www.informaworld.com.ezproxylocal.library.nova.edu/smpp/title~db=all~content=g791051942 doi:10.1080/10409280701839189

Biemiller, A. (2007). The influence of vocabulary on reading acquisition *Encyclopedia of Language and Literacy Development* (pp. 1-10). Retrieved from http://www.literacyencyclopedia.ca/pdfs/topic.php?topId=19

Bowman, B. T., Donovan, S., & Burns, M. S. (Eds.). (2001). *Eager to learn: Educating our preschoolers*. Washington, D.C. : National Academies Press.

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*(1), 45-67. doi: 10.1080/10409280701838835

Britto, P. R., & Brooks-Gunn, J. (2001). Beyond shared book reading: Dimensions of home literacy and low-income african american preschoolers' skills. *New Directions for Child and Adolescent Development, 2001*(92), 73-90. doi: 10.1002/cd.16

Burchinal, M. R., Roberts, J. E., Riggins Jr., R., Zeisel, S. A., Neebe, E., & Bryant, D. (2000). Relating quality of center based child care to early cognitive and language development longitudinally. *Child Development, 71*(2), 339-357. doi: 10.1111/1467-8624.00149

Burgess, S. R. (2002). Shared reading correlates of early reading skills. *Reading Online, 5*(7). Retrieved from http://www.readingonline.org/articles/burgess/

Burgess, S. R., Hecht, S. A., & Lonigan, C. J. (2002). Relations of the home literacy environment (HLE) to the development of reading-related abilities: A one-year longitudinal study. *Reading Research Quarterly, 37*(4), 408-426. doi: 10.1598/RRQ.37.4.4

Burgess, S. R., & Lonigan, C. J. (1998). Bidirectional relations of phonological sensitivity and prereading abilities: Evidence from a preschool sample. *Journal of Experimental Child Psychology, 70*(2), 117-141. Retrieved from http://www.sciencedirect.com/science/article/pii/S002209659892450X doi:10.1006/jecp.1998.2450

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*, 998-1015. Retrieved from http://www.jstor.org/stable/748207 doi:10.2307/748207

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), 1-21. doi: 10.3102/00346543065001001

Cairney, T. H. (2003). Literacy within family life. In N. Hall, J. Larson & J. Marsh (Eds.), *Handbook of Early Childhood Literacy* (pp. 85-98). Thousand Oaks, CA: SAGE Publications Ltd.

Casbergue, R. M., & McGee, L. (2011). Shifting Perspectives in Emergent Literacy Research. In A. McGill-Franzen & R. L. Allington (Eds.), *Handbook of Reading Disability Research* (pp. 185). NY, NY: Routledge.

Cattell, N. R. (2004). *Children's language : consensus and controversy*. London; New York: Continuum.

Chomsky, N. (1959). A Review of B. F. Skinner's Verbal Behavior [Review of the book, *Verbal behavior,* by B. F. Skinner]. *Language, 35*(1), 26-58.

Chomsky, N. (2000). Linguistics and brain science. In A. Marantz, Y. Miyashita & W. A. O'Neil (Eds.), *Image, Language, Brain* (pp. 13-28). Cambridge, Mass.: MIT Press.

Cooper, D. H., Roth, F. P., Speece, D. L., & Schatschneider, C. (2002). The contribution of oral language skills to the development of phonological awareness. *Applied Psycholinguistics, 23*(3), 399-416. Retrieved from http://proquest.umi.com/pqdlink?Ver=1&Exp=08-09-2016&FMT=7&DID=1409692231&RQT=309 doi:10.1017.S0142716402003053

Crain-Thoreson, C., Dahlin, M. P., & Powell, T. A. (2001). Parent-child interaction in three conversational contexts: Variations in style and strategy. *New Directions for Child and Adolescent Development, 2001*(92), 23-38. doi: 10.1002/cd.13

Crawford, P. A. (1995). Early Literacy: Emerging Perspectives. *Journal of Research in Childhood Education, 10*(1), 71-86.

Cunningham, A. E., & Zibulsky, J. (2011). Tell me a story: Examining the benefits of shared reading. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (Vol. 3, pp. 396-411). NY, NY: Guilford Publications.

Curenton, S. M., Craig, M. J., & Flanigan, N. (2008). Use of decontextualized talk across story contexts: How oral storytelling and emergent reading can scaffold children's development. *Early Education & Development, 19*(1), 161-187. Retrieved from http://dx.doi.org/10.1080/10409280701839296 doi:10.1080/10409280701839296

DeBaryshe, B. D. (1996). What a Parent Brings to the Table: Young Children Writing with and without Parental Assistance. *Journal of literacy Research, 28*(1), 71-90.

DeBaryshe, B. D., Binder, J. C., & Buell, M. J. (2000). Mothers' implicit theories of early literacy instruction: Implications for children's reading and writing. *Early Child Development and Care*.

Dickinson, D. K., Golinkoff, R. M., & Hirsh-Pasek, K. (2010). Speaking out for language: Why language is central for reading development. *Educational Researcher, 39*(4), 305-310. Retrieved from http://edr.sagepub.com/content/39/4/305.abstract doi:10.3102/0013189x10370204

Dickinson, D. K., McCabe, A., Anastasopoulos, L., Peisner-Feinberg, E. S., & Poe, M. D. (2003). The comprehensive language approach to early literacy: The interrelationships among vocabulary, phonological sensitivity, and print knowledge among preschool-aged children. *Journal of Educational Psychology, 95*(3), 465-481.

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*(3),

124-136. Retrieved from http://tec.sagepub.com/content/23/3/124.short doi:10.1177/02711214030230030301

Duncan, G. J., & Brooks-Gunn, J. (2000). Family poverty, welfare reform, and child development. *Child Development, 71*(1), 188-196. doi: 10.1111/1467-8624.00133

Elliott, E. M., & Olliff, C. B. (2008). Developmentally appropriate emergent literacy activities for young children: Adapting the early literacy and learning model. *Early Childhood Education Journal, 35*(6), 551-556.

Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD]. (2000). Report of the National Reading Panel: Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. (NIH Publication No. 00-4769). Retrieved from

Eunice Kennedy Shriver National Institute of Child Health and Human Development [NICHD], National Institutes of Heath [NIH], & U.S. Department of Health and Human Services [DHHS]. (2000). Emergent and Early Literacy Workshop: Current Status and Research Directions. Proceedings. Retrieved from http://www.nichd.nih.gov/crmc/cdb/eeldocv8ps.pdf.

Evans, M. A., & Saint-Aubin, J. (2005). What children are looking at during shared storybook reading: Evidence from eye movement monitoring. *Psychological Science, 16*(11), 913-920. doi: 10.1111/j.1467-9280.2005.01636.x

Evans, M. A., Shaw, D., & Bell, M. (2000). Home literacy activities and their influence on early literacy skills. *Canadian Journal of Experimental Psychology/Revue canadienne de psychologie experimentale, 54*(2), 65-65-75. Retrieved from

http://ezproxylocal.library.nova.edu/login?url=http://search.proquest.com/docview/85534616?accountid=6579 doi:10.1037/h0087330

Fernald, A., & Weisleder, A. (2011). Early language experience is vital to developing fluency in understanding. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy* (Vol. 3, pp. 3-35). New York and London: Guilford Press.

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*(1), 59-59-88. Retrieved from http://ezproxylocal.library.nova.edu/login?url=http://search.proquest.com/docview/200851953?accountid=6579 doi:10.1017.S0142716403000043

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*(3), 466-466-477. Retrieved from http://ezproxylocal.library.nova.edu/login?url=http://search.proquest.com/docview/614372579?accountid=6579 doi:10.1037/0022-0663.92.3.466

Furnes, B., & Samuelsson, S. (2011). Phonological awareness and rapid automatized naming predicting early development in reading and spelling: Results from a cross-linguistic longitudinal study. *Learning and Individual Differences, 21*(1), 85-95. doi: DOI: 10.1016/j.lindif.2010.10.005

Goswami, U. (2002). Early phonological development and the aquisition of literacy. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (Vol. 1, pp. 111-125). New York; London: Guilford.

Green, C. R., Lilly, E., & Barrett, T. M. (2002). Families reading together: Connecting literature and life. *Journal of Research in Childhood Education, 16*(2), 248-262. Retrieved from doi:10.1080/02568540209594988

Hammer, C. S., Miccio, A. W., & Wagstaff, D. A. (2003). Home literacy experiences and their relationship to bilingual preschoolers' developing English literacy abilities: An initial investigation. *Language, Speech, and Hearing Services in Schools, 34*(1), 20. Retrieved from http://www.cds.unc.edu/CCHD/S2005/02-14/hammer,%20c.,%202%20of%202.pdf doi:10.1044/0161-1461(2003/003)

Hammer, C. S., Scarpino, S., & Davison, M. D. (2011). Beginning with language: Spanish-English bilingual preschoolers' early literacy development. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (Vol. 3, pp. 118-135). NY, NY: Guilford Publications.

Hammill, D. D. (2004). What We Know about Correlates of Reading. *Exceptional Children, 70*(4), 453-469.

Hauser, M. D., Chomsky, N., & Fitch, W. T. (2002). The Faculty of Language: What Is It, Who Has It, and How Did It Evolve? *Science, 298*(5598), 1569-1579.

Hayiou-Thomas, M. E., Harlaar, N., Dale, P. S., & Plomin, R. (2006). Genetic and environmental mediation of the prediction from preschool language and nonverbal ability to 7 year reading. *Journal of Research in Reading, 29*(1), 50-74. doi: 10.1111/j.1467-9817.2006.00292.x

Invernizzi, M., Landrum, T. J., Teichman, A., & Townsend, M. (2010). Increased implementation of emergent literacy screening in pre-kindergarten. *Early Childhood Education Journal, 37*(6), 437-446.

Jiménez, R. T., Moll, L. C., Rodríguez-Brown, F. V., & Barrera, R. B. (1999). Conversations: Latina and Latino Researchers Interact on Issues Related to Literacy Learning. *Reading Research Quarterly, 34*(2), 217-230.

Justice, L. M. (2005). *Literacy and SLP: Part I fundamentals of emergent and early literacy development.* Paper presented at the Arizona Speech Hearing Association 2005 Annual Convention, Sedona, Arizona.

Justice, L. M. (2006). Emergent literacy: Development, domains, and intervention approaches. In L. M. Justice (Ed.), *Clinical approaches to emergent literacy intervention* (Vol. 1, pp. 1-27). San Diego, CA: Plural Publishing.

Justice, L. M., & Piasta, S. B. (2011). Developing children's print knowledge though adult-chilld storybook reading interactions: Print referencing as an instructional practice. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (Vol. 3, pp. 200-213). NY, NY: Guilford Publications.

Justice, L. M., Pullen, P. C., & Pence, K. (2008). Influence of verbal and nonverbal references to print on preschoolers' visual attention to print during storybook reading. *Developmental Psychology, 44*(3), 855-855-866. doi: 10.1037/0012-1649.44.3.855

Lonigan, C. J. (2006). Development, Assessment, and Promotion of Preliteracy Skills. *Early Education & Development, 17*(1), 91-114. Retrieved from http://dx.doi.org/10.1207/s15566935eed1701_5 doi:10.1207/s15566935eed1701_5

Lonigan, C. J., Anthony, J. L., Phillips, B. M., Purpura, D. J., Wilson, S. B., & McQueen, J. D. (2009). The nature of preschool phonological processing abilities and their

relations to vocabulary, general cognitive abilities, and print knowledge. *Journal of Educational Psychology, 101*(2), 345-358. doi: 10.1037/a0013837

Lonigan, C. J., Burgess, S. R., & Anthony, J. L. (2000). Development of emergent literacy and early reading skills in preschool children: Evidence from a latent-variable longitudinal study. *Developmental Psychology, 36*(5), 596-612. doi: 10.1037//OOI2-1649.36.5.596

Lonigan, C. J., Escamilla, K., & Strickland, D. (2008). Impact of home and parent programs on young children's early literacy skills. In National Institute for Literacy (Ed.), Developing early literacy: Report of the national early literacy panel (pp. 173-188): National Early Literacy Panel: ED Pub. Retrieved from http://www.famlit.org/NELP/pdf/NELP%20Report.pdf.

Lonigan, C. J., Schatschneider, C., & Westberg, L. (2008a). Identification of children's skills and abilities linked to later outcomes in reading, writing, and spelling. In National Institute for Literacy (Ed.), Developing Early Literacy: Report of the National Early Literacy Panel. Washington, D. C.: National Early Literacy Panel: ED Pub. Retrieved from http://www.famlit.org/NELP/pdf/NELP%20Report.pdf.

Lonigan, C. J., Schatschneider, C., & Westberg, L. (2008b). Impact of code focused interventions on young children's early literacy skills. In National Institute for Literacy (Ed.), Developing Early Literacy: Report of the National Early Literacy Panel (pp. 107-151). Washington, D.C.: National Early Literacy Panel: ED Pub. Retrieved from http://www.famlit.org/NELP/pdf/NELP%20Report.pdf.

Lonigan, C. J., & Shanahan, T. (2008). Executive summary of the report of the national early literacy panel In National Institute for Literacy (Ed.), Developing early

literacy: Report of the national early literacy panel (pp. v-xii): National Early Literacy Panel: ED Pub. Retrieved from http://www.famlit.org/NELP/pdf/NELP%20Report.pdf.

Lonigan, C. J., Shanahan, T., & Cunningham, A. (2008). Impact of shared reading interventions on young children's early literacy skills. In National Institute for Literacy (Ed.), Developing early literacy: Report of the national early literacy panel (pp. 153-171). Washington, D. C.: National Early Literacy Panel, ED Pub. Retrieved from http://www.famlit.org/NELP/pdf/NELP%20Report.pdf.

Lyon, G. R. (1999). *Hearing on Title I (Education of the Disadvantaged) of the Elementary and Secondary Education Act. Statement of the Chief of the Child Development and Behavior Branch of the National Institute of Mental Health and Human Development, National Institutes of Health, to the committee on Education and the Workforce to the United States House of Representatives*. Washington, DC: U.S: Department of Health and Human Services Retrieved from http://www.reidlyon.com/edpolicy/6-HEARING-ON-TITLE-I.pdf.

McGrew, K. S., & Woodcock, R. W. (2001). *Technical manual: Woodcock-Johnson III*. Itasca, IL: Riverside Publishing.

Meagher, S. M., Arnold, D. H., Doctoroff, G. L., & Baker, C. N. (2008). The relationship between maternal beliefs and behavior during shared reading. *Early Education and Development, 19*(1), 138-160. Retrieved from http://dx.doi.org/10.1080/10409280701839221 doi:10.1080/10409280701839221

Mol, S. E., Bus, A. G., De Jong, M. T., & Smeets, D. J. H. (2008). Added value of dialogic parent-child book readings: A meta-analysis. *Early Education and*

Development, 19(1), 7-26. Retrieved from http://dx.doi.org/10.1080/10409280701838603 doi:10.1080/10409280701838603

Neuman, S. B. (2010). Lessons from my mother: Reflections on the National Early Literacy Panel report *Educational Researcher, 39*(4), 301-304. Retrieved from http://edr.sagepub.com/content/39/4/301.abstract doi:10.3102/0013189x10370475

Neuman, S. B., Copple, C., Bredekamp, S., & National Association for the Education of Young Children. (2000). *Learning to read and write: developmentally appropriate practices for young children*: National Association for the Education of Young Children.

Notari-Syverson, A., O'Connor, R. E., & Vadasy, P. F. (1998). *Ladders to Literacy: A preschool activity book.* Baltimore, MD: Paul H. Brookes Publishing Co. .

Ortiz, R. W. (2001). Pivotal parents: Emergent themes and implications on father involvement in children's early literacy experiences. *Reading Improvement 38*(3), 132-144.

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* 1. *Early Childhood Research Quarterly, 9*(3-4), 427-440.

Phillips, B. M., & Lonigan, C. J. (2009). Variations in the home literacy environment of preschool children: A cluster analytic approach. *Scientific Studies of Reading, 13*(2), 146-174. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/10888430902769533 doi:10.1080/10888430902769533

Phillips, B. M., Lonigan, C. J., & Wyatt, M. A. (2009). Predictive Validity of the Get Ready to Read! Screener. *Journal of learning disabilities, 42*(2), 133. doi: 10.1177/0022219408326209

Phillips, R. D., Gorton, R. L., Pinciotti, P., & Sachdev, A. (2010). Promising Findings on Preschoolers' Emergent Literacy and School Readiness In Arts-integrated Early Childhood Settings. *Early Childhood Education Journal, 38*, 111-122. doi: 10.1007/s10643-010-0397-x

Piasta, S. B., & Wagner, R. K. (2010). Developing early literacy skills: A meta-analysis of alphabet learning and instruction. *Reading Research Quarterly, 45*(1), 8-38. Retrieved from http://www.jstor.org/stable/25614628 doi:10.1598/RRQ.45.1.2

Rampey, B. D., Dion, G. S., & Donahue, P. L. (2009). NAEP 2008: Trends in Academic Progress. NCES 2009-479. *National Center for Education Statistics*, 1-56. Retrieved from http://nces.ed.gov/pubsearch.

Reese, L., Garnier, H., Gallimore, R., & Goldenberg, C. (2000). Longitudinal analysis of the antecedents of emergent Spanish literacy and middle-school English reading achievement of Spanish-speaking students. *American Educational Research Journal, 37*(3), 633-662. doi: 10.3102/00028312037003633

Reese, L., & Goldenberg, C. (Eds.). (1999). *Job-required literacy, home literacy environments, and school reading: Early literacy experiences of immigrant Latino children* (Vol. VII). Washington, D. C.: American Anthropological Association.

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: JSLHR, 48*(2), 345-349. Retrieved from

http://find.galegroup.com.ezproxylocal.library.nova.edu/gtx/infomark.do?action=interpret&sPage=345&searchType=AdvancedSearchForm&type=search&prodId=AONE&source=null&queryId=Locale%28en,US,%29:FQE=%28sp,3%29345:And:FQE=%28iu,1%292:And:FQE=%28sn,9%291092-4388:And:FQE=%28vo,2%2948$&version=1.0&userGroupName=novaseu_main&finalAuth=true doi:10.1044/1092-4388(2005/024)

Roth, F. P., Speece, D. L., Cooper, D. H., & de la Paz, S. (1996). Unresolved mysteries: How do metalinguistic and narrative skills connect with early reading? *The Journal of Special Education, 30*(3), 257-277. doi: 10.1177/002246699603000303

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*(1), 3-14. Retrieved from http://vnweb.hwwilsonweb.com.ezproxylocal.library.nova.edu/hww/results/results_single_fulltext.jhtml;hwwilsonid=LLLN2B1QYIY1ZQA3DILSFF4ADUNGIIV0 doi:10.1177/027112149901900101

Scarborough, H. S. (1991). Antecedents to reading disability: Preschool language development and literacy experiences of children from dyslexic families. *Reading and Writing, 3*(3), 219-233. doi: 10.1007/BF00354959

Scarborough, H. S. (2002). Connecting early language and literacy to later reading (dis) abilities: Evidence, theory, and practice. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (Vol. 1, pp. 97–110). New York; London: Guilford.

Scarborough, H. S., & Dobrich, W. (1994). On the efficacy of reading to preschoolers. *Developmental Review, 14*(3), 245-302. doi: 10.1006/drev.1994.1010

Schatschneider, C., Westberg, L., & Shanahan, T. (2008). Methodology of the National Early Literacy Panel. In National Institute for Literacy (Ed.), Developing Early Literacy: Report of the National Early Literacy Panel. Washington, D. C.: National Early Literacy Panel: ED Pub. Retrieved from http://www.famlit.org/NELP/pdf/NELP%20Report.pdf.

Schrank, F. A., McGrew, K. S., & Woodcock, R. W. (2001). WJ III Technical Abstract: Woodcock-Johnson III Assessment Service Bulletin No. 2. *Itasca, IL: Riverside Publishing*. Retrieved from http://www.iapsych.com/wj3ewok/LinkedDocuments/asb-2.pdf

Schuele, C. M., & Boudreau, D. (2008). Phonological awareness intervention: Beyond the basics. *Language, Speech, and Hearing Services in Schools, 39*(1), 3-20. Retrieved from http://www.starkcountyesc.org/index.php?page=contlanginterv-earlyelem. doi:10.1044/0161-1461

Sénéchal, M. (2011). A model of concurrent and logitudinal relations between home literacy and child outomes. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (Vol. 3, pp. 175-188). NY, NY: Guilford Publications.

Sénéchal, M., & LeFevre, J. (2001). Storybook reading and parent teaching: Links to language and literacy development. *New Directions for Child and Adolescent Development, 2001*(92), 39-52. doi: 10.1002/cd.14

Sénéchal, M., & LeFevre, J. A. (2002). Parental Involvement in the Development of Children's Reading Skill: A Five Year Longitudinal Study. *Child Development, 73*(2), 445-460.

Sénéchal, M., LeFevre, J. A., Hudson, E., & Lawson, E. P. (1996). Knowledge of storybooks as a predictor of young children's vocabulary. *Journal of Educational Psychology, 88*(3), 520-520-536. doi: 10.1037/0022-0663.88.3.520

Sénéchal, M., Pagan, S., Lever, R., & Ouellette, G. (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*(1), 27-44. Retrieved from http://dx.doi.org/10.1080/10409280701838710 doi:10.1080/10409280701838710

Sénéchal, M., & Young, L. (2008). The effect of family literacy interventions on children's acquisition of reading from Kindergarten to Grade 3: A meta-analytic review. *Review of Educational Research, 78*(4), 880. doi: 10.3102/0034654308320319

Serpell, R., Sonnenschein, S., Baker, L., & Ganapathy, H. (2002). Intimate culture of families in the early socialization of literacy. *Journal of Family Psychology, 16*(4), 391-391-405. Retrieved from http://ezproxylocal.library.nova.edu/login?url=http://search.proquest.com/docview/614370720?accountid=6579 doi:10.1037/0893-3200.16.4.391

Shanahan, T. (2007). Early Literacy Development: Sequence of Acquisition *Encyclopedia of Language and Literacy Development* (Vol. Volume, pp. 1-6). London, ON: Canadian Language and Literacy Research Network.

Shanahan, T. (2008). Introduction to the report of the national early literacy panel. In N. I. f. Literacy (Ed.), Developing early literacy: Report of the national early literacy panel (pp. xiii-xvii): National Early Literacy Panel, ED Pub. Retrieved from http://www.famlit.org/NELP/pdf/NELP%20Report.pdf.

Shanahan, T., & Lonigan, C. J. (2010). The National Early Literacy Panel: A summary of the process and the report *Educational Researcher, 39*(4), 279-285 Retrieved from http://edr.sagepub.com/content/39/4/279.full.pdf+html doi:10.3102/0013189X10369172

Silinskas, G., Parrila, R., Lerkkanen, M. K., Poikkeus, A. M., Niemi, P., & Nurmi, J. E. (2010). Mothers' reading-related activities at home and learning to read during kindergarten. *European Journal of Psychology of Education, 25*(2), 243-264. doi: 10.1007/s10212-010-0014-9

Skibbe, L. E., Justice, L. M., Zucker, T. A., & McGinty, A. S. (2008). Relations among maternal literacy beliefs, home literacy practices, and the emergent literacy skills of preschoolers with specific language impairment. *Early Education and Development, 19*(1), 68-88. Retrieved from http://dx.doi.org/10.1080/10409280701839015 doi:10.1080/10409280701839015

Skinner, B. (1986). The evolution of verbal behavior. *Journal of the Experimental analysis of Behavior, 45*(1), 115.

Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academies Press.

Snow, C. E., & Oh, S. S. (2011). Assessment in early literacy research. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (Vol. 3, pp. 375-395). NY, NY: Guilford Publications.

Sonnenschein, S. (2002). Engaging children in the appropriation of literacy: The importance of parental beliefs and practices. In O. Saracho & B. Spodek (Eds.), Contemporary perspectives in literacy in early childhood education (Vol. 2, pp. 127-149). Greenwich, CT: Information Age Publishers Retrieved from http://www.umbc.edu/psyc/personal/sonnenschein/susans.html.

Sonnenschein, S., & Baker, L. (2005). *How parental beliefs about children's development relate to children's literacy competencies. In D. Aram (Chair), New perspectives on shared storybook reading: It is not just the print.* Paper presented at the Symposium presented at Society for Research in Child Development, Atlanta, GA. http://www.umbc.edu/psyc/personal/sonnenschein/susans.html

Sonnenschein, S., Baker, L., & Katenkamp, A. (2007). *Relations between early and later literacy development: The impact of early home experiences.* Paper presented at the Paper presented at Society for the Scientific Study of Reading, Prague, CZ. http://www.umbc.edu/psyc/personal/sonnenschein/susans.html

Sonnenschein, S., Baker, L., Moyer, A., & LeFevre, S. (2005). *Parental beliefs about children's reading and math development and relations with subsequent achievement*. Paper presented at the Paper presented at Society for Research in Child Development, Atlanta, GA. http://www.umbc.edu/psyc/personal/sonnenschein/susans.html

Sonnenschein, S., Baker, L., Serpell, R., & Schmidt, D. (2000). Reading is a source of entertainment: The importance of the home perspective for children's literacy development. In K. A. Roskos & J. F. Christie (Eds.), Play and literacy in early childhood: Research from multiple perspectives (pp. 107-124). Mahwah, NJ: Lawrence Erlbaum Associates, Inc. Retrieved from http://books.google.com/books?hl=en&lr=lang_en|lang_es&id=3kw04VoQ3gwC&oi=fnd&pg=PA107&dq=sonnenschein+brody+and+munsterman+1996&ots=OqrG_or5tF&sig=_ub23Wc0_eGmor1ZoZxmd0V6fSA#v=onepage&q=sonnenschein%20brody%20and%20munsterman%201996&f=false.

Sonnenschein, S., Brody, G., & Munsterman, K. (1996). The influence of family beliefs and practices on children's early reading development. In L. Baker, P. Afflerbach & D. Reinking (Eds.), Developing engaged readers in school and home communities (pp. 3–20). Mahwah, NJ: Lawrence Erlbaum Associates, Inc. Retrieved from http://books.google.com/books?hl=en&lr=lang_en|lang_es&id=MTUFRDDK2boC&oi=fnd&pg=PA3&dq=sonnenschein,+brody,+and+munsterman+1996&ots=Yr1okRRL2r&sig=rZTLCsjj9dDE1fVi_HUQXYTedOk#v=onepage&q&f=false.

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*(3), 318-337. Retrieved from http://www.sciencedirect.com/science/article/pii/S0885200602001679 doi:10.1016/s0885-2006(02)00167-9

Speece, D. L., Roth, F. P., Cooper, D. H., & de la Paz, S. (1999). The relevance of oral language skills to early literacy: A multivariate analysis. *Applied Psycholinguistics, 20*(02), 167-190. Retrieved from http://journals.cambridge.org/action/displayFulltext?type=1&fid=31964&jid=APS&volumeId=20&issueId=02&aid=31963&bodyId=&membershipNumber=&societyETOCSession= doi:10.1017/S0142716499002015

Stemmer, N. (1990). Skinner's verbal behavior, Chomsky's review, and mentalism. *Journal of the Experimental analysis of Behavior, 54*(3), 307.

Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences* (4th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Stobbart, C., & Alant, E. (2008). Home-based literacy experiences of severely to profoundly deaf preschoolers and their hearing parents. *Journal of Developmental and Physical Disabilities, 20*(2), 139-153.

Stoltz, B. M., & Fischel, J. E. (2003). Evidence for different parent-child strategies while reading. *Journal of Research in Reading, 26*(3). doi: 10.1111/1467-9817.00204

Storch, S. A., & Whitehurst, G. J. (2001). The role of family and home in the literacy development of children from low income backgrounds. [2/22/11]. *New directions for child and adolescent development, 2001*(92), 53-72. Retrieved from http://onlinelibrary.wiley.com.ezproxylocal.library.nova.edu/doi/10.1002/cd.v2001:92/issuetoc doi:10.1002/cd.15

Storch, S. A., & Whitehurst, G. J. (2002). Oral language and code-related precursors to reading: Evidence from a longitudinal structural model. *Developmental Psychology, 38*(6), 934-934-947. Retrieved from

http://ezproxylocal.library.nova.edu/login?url=http://search.proquest.com/docview/614428281?accountid=6579 doi:10.1037/0012-1649.38.6.934

Strickland, D., & Riley-Ayers, S. (2006). *Early literacy: Policy and practice in the preschool years.* New Brunswick, NJ: National Institute for Early Education Research at Rutgers University Retrieved from http://nieer.org/docs/?DocID=143.

Taylor, H. B., Anthony, J. L., Aghara, R., Smith, K. E., & Landry, S. H. (2008). The interaction of early maternal responsiveness and children's cognitive abilities on later decoding and reading comprehension skills. *Early Education & Development, 19*(1), 188-207. Retrieved from http://dx.doi.org/10.1080/10409280701839304 doi:10.1080/10409280701839304

The Mailman Segal Institute for Early Childhood Studies. (2010). Scope and Sequence, from www.nova.edu/humandevelopment/earlylearning/infanttoddler/forms/5c_curriculum_framework.pdf

Touliatos, J., Perlmutter, B. F., & Holden, G. W. (Eds.). (2001). *Handbook of family measurement techniques* (Vol. 2). Thousand Oaks, CA: Sage Publications.

Townsend, M., & Konold, T. R. (2010). Measuring early literacy skills: A latent variable investigation of the Phonological Awareness Literacy Screening for Preschool. *Journal of Psychoeducational Assessment, 28*(2), 115. Retrieved from http://jpa.sagepub.com/content/28/2/115 doi:10.1177/0734282909336277

U.S. Census Bureau. (2011). Child care arrangements of preschool children by type of arrangement: 1991 to 2005. *United States Census 2011*. Retrieved from http://www.census.gov/compendia/statab/2011/tables/11s0576.pdf

Vukelich, C., & Christie, J. F. (2009). How children learn to read and write. Building a foundation for preschool literacy: Effective instuction for children's reading and writing development (2nd ed.): International Reading Association. . Retrieved from http://www.reading.org/Publish.aspx?page=bk700-1-Vukelich.pdf&mode=retrieve&D=10.1598/9780872077003.1&F=bk700-1-Vukelich.pdf&key=2A747FB4-F834-4094-967F-E4B24AB72C58.

Vygotsky, L. S. (1967). Play and its role in the mental development of the child. *Journal of Russian and East European Psychology*, *5*(3), 6-18.

Vygotsky, L. S. (1978). Interaction between learning and development. *Mind in society: The development of higher psychological processes*, 79-91.

Wagner, R. K., & Torgesen, J. K. (1987). The nature of phonological processing and its causal role in the acquisition of reading skills. *Psychological Bulletin*, *101*(2), 192-192-212. Retrieved from http://ezproxylocal.library.nova.edu/login?url=http://search.proquest.com/docview/614337593?accountid=6579 doi:10.1037/0033-2909.101.2.192

Wagner, R. K., Torgesen, J. K., & Rashotte, C. A. (1994). Development of reading-related phonological processing abilities: New evidence of bidirectional causality from a latent variable longitudinal study. *Developmental Psychology*, *30*(1), 73-73-87. Retrieved from http://ezproxylocal.library.nova.edu/login?url=http://search.proquest.com/docview/614323776?accountid=6579 doi:10.1037/0012-1649.30.1.73

Weigel, D. J., Martin, S. S., & Bennett, K. K. (2005). Ecological influences of the home and the child-care center on preschool-age children's literacy development. *Reading Research Quarterly, 40*(2), 204-233. doi: 10.1598/RRQ.40.2.4

Weigel, D. J., Martin, S. S., & Bennett, K. K. (2006). Mothers' literacy beliefs: Connections with the home literacy environment and pre-school children's literacy development. *Journal of Early Childhood Literacy, 6*(2), 191. doi: 10.1177/1468798406066444

West, J., Denton, K., & Germino- Hausken, E. (2000). *America's kindergarteners (NCES 2000-070)*. Washington, DC: U.S.: National Center for Education Statistics Retrieved from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2000070.

Whitehurst, G. J. (1993). *The Stony Brook family reading survey*. Stony Brook, NY: Author.

Whitehurst, G. J. (2011). Evidence based education science and the challenge of learning to read. *Children of the Code Project*. Retrieved from http://www.childrenofthecode.org/interviews/whitehurst.htm

Whitehurst, G. J., & Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development, 69*(3), 848-872. Retrieved from http://onlinelibrary.wiley.com.ezproxylocal.library.nova.edu/doi/10.1111/j.1467-8624.1998.tb06247.x/pdf doi: 10.1111/j.1467-8624.1998.tb06247.x

Whitehurst, G. J., & Lonigan, C. J. (2002). Emergent literacy: Development from prereaders to readers. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 1, pp. 11-28). New York; London: Guilford.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001a). *Woodcock-Johnson III tests of achievement examiner's manual*. Itasca, IL: Riverside Publishing.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001b). *Woodcock-Johnson III tests of cognitive ability examiner's manual*. Itasca, IL: Riverside Publishing.

Zill, N., & Resnick, G. (2006). Emergent literacy of low-income children in Head Start: Relationships with child and family characteristics, program factors, and classroom quality In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 2). New York, NY: Guilford Press.