SIBLING IMPACT ON EARLY LITERACY DEVELOPMENT
AS OBSERVED BY PARENTS

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SIBLING IMPACT ON EARLY LITERACY DEVELOPMENT
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The purpose of this study is to examine the sibling relationship as it pertains to the development of early literacy skills. The study examines if and how siblings support one another in their journey to develop the necessary early literacy skills required to succeed in school. If siblings do, in fact, help to foster early literacy skills, then perhaps preschool teachers and parents can be encouraged and trained to capitalize on this mentor-like relationship among siblings. Preschool teachers could use similar mentor models in their classrooms and help to educate parents about the powerful influence that siblings have on one another and how this influence can be used in positive ways. In order to gain a better understanding of the nature of the sibling relationship as it pertains to the development of early literacy skills, the following guiding research questions were examined: (1) What scaffolding activities do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills? (2) What sibling interactions do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills? (3) What patterns of behavior do parents report when the older sibling(s) support younger sibling(s) in the acquisition of early literacy skills? (4) What home environments do parents report that promote early literacy interactions?
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CHAPTER I
INTRODUCTION

Background of the Problem

Children used to enter kindergarten without knowing the alphabet, without being able to write their name, and without being able to count (Graue, 2009)—they learned these skills during kindergarten. Children are now expected to enter kindergarten with basic pre-literacy skills so they may acquire more advanced skills helping them succeed in school (Ohio Department of Education, 2012).

According to Ohio’s kindergarten grade level indicators, by the end of the kindergarten school year, children are expected to distinguish and name all upper- and lower-case letters, recognize, say and write the common sounds of letters, distinguish letters from words by recognizing that words are separated by spaces, understand new words from the context of conversations or from the use of pictures within a text, compare information (e.g., recognize similarities) in tests using prior knowledge and experience, determine the meaning of unknown words using a beginner’s dictionary (Ohio Department of Education, 2012). The skills mentioned are a sampling of the reading indicators for the kindergarten year. There are also several indicators for writing standards, math standards, social studies standards, science standards and technology standards.
Many children entering kindergarten lack the early literacy skills needed to enter into a successful year in American public schools (Pullen & Justice, 2003). We know that children who begin their educations struggling often continue to struggle throughout their schooling careers (Pullen & Justice, 2003). Therefore, entering school without early literacy skills could set children on a path toward failure.

Many children entering kindergarten come from homes that do not foster early literacy skills. Children coming from families of low socio-economic means, minority families, or families with caregivers who have very little education are especially lacking the early literacy skills necessary to succeed in school (Kirkland & Patterson, 2005; Pullen & Justice, 2003).

**Purpose of the Research**

The home is a powerful influence on children’s development of early literacy skills (Barnhill & Halquist, 2010; Brown & Byrnes, 2012; Hammer et al., 2010; Johnson et al., 2008; Lenhart & Roskos, 2003; Neuman et al., 2009; Sokal & Piotrowski, 2011). We know that the primary caregiver’s education level, socio-economic status and background are important factors in children acquiring early literacy skills. Although we know much about the influence of primary caregivers on a child’s literacy development, there has not been little research conducted on the powerful influence that siblings have on one another in regard to early literacy skills.

With the exception of a classic series of studies conducted by Helen Koch (1960), the sibling relationship has been under research by scientists. The lack of focus on sibling relationships is surprising in that major theorists (e.g., Piaget, 1965; Sullivan, 1953; Vygotsky, 1978) have written about the developmental significance of child-to-
child interactions for decades (Dunn, 1993). Over the past 10 to 15 years, systematic studies of siblings have cropped up in child psychology and child development literature (Howe et al., 2005; Howe & Recchia, 2005, 2009; Kramer & Conger 2009; Recchia et al., 2009;). However, there is very little literature available on the sibling relationship in the field of early literacy (Barnhill & Halquist, 2010; Colorado, 2006; Lenhart, 2000; Lenhart & Roskos, 2003; Sokal & Piotrowski, 2011).

Some literature on multilingual families provides research on how siblings work to scaffold and work within one another’s zone of proximal development (Gregory, 1998, 2004). Siblings help one another navigate the rocky waters of growing up speaking one language in their household and another in their school. Gregory (1998) examined seven 6-year-old Bangladeshi children living and going to school in London. The researchers were originally looking at “…examining the reading histories and current practices of both indigenous English and Bangladeshi origin families…and comparing these with reading practices in the English schools” (Gregory, 1998, p. 13). They soon changed their focus to investigating the role of the older siblings in young children’s reading development when they observed the rich interactions that took place among siblings (Gregory, 1998).

Understanding the early literacy interactions among siblings requires more research. For example, we know that older siblings scaffold the younger sibling, but what is the nature of that scaffolding? Do they explain how print works, or simply help them with a task? Is one sibling more passive than the other? Do they encourage one another? Is the parent cognizant of what impacts and encourages literacy in the home? The field of early literacy has a broad understanding that siblings do, in fact, scaffold
one another in early literacy events; the aforementioned details are yet to be studied in depth.

The purpose of this study is to examine the sibling relationship as it pertains to the development of early literacy skills. I venture to find out if and how siblings support one another in their journey to develop the necessary early literacy skills required to succeed in school.

If siblings do, in fact, help to foster early literacy skills, then perhaps we can help preschool teachers to capitalize on this mentor-like relationship among siblings. Preschool teachers could use similar mentor models in their classrooms and help to educate parents about the powerful influence that siblings have on one another and how this influence can be used in positive ways. If parents lack the ability to learn about fostering the sibling relationship, then perhaps preschool teachers could directly influence their students to share literacy activities with their younger siblings.

**Guiding Questions**

In order to gain a better understanding of the nature of the sibling relationship as it pertains to the development of early literacy skills, I will research the following questions:

1. What scaffolding activities do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

2. What sibling interactions do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

3. What patterns of behavior do parents report when the older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?
4. What home environments do parents report that promote early literacy interactions?

**Definition of Terms**

**Early literacy.** Early literacy recognizes “…that there is no beginning point to literacy learning. It begins early, is ongoing, and continuous throughout life” (Lenhart, 2000, p. 6). Literacy development begins in infancy as children “…learn to communicate using oral language and grows as children are exposed to print and gain awareness of the connection between print and oral language” (Roland et al., 1997, p. 680).

**Early literacy skills.** Early literacy-relevant skills include the capacity to name and print letters, to spell one’s own name, to recognize letters and environmental print, to handle books appropriately, to orally manipulate phonemes, and to have the ability to rhyme simple words (Brown & Byrnes, 2012; Hammer et al., 2010; Johnson et al., 2008; Lenhart & Roskos, 2003; Neuman et al., 2009).

**Home literacy environment (HLE).** “…Scholars have employed the term ‘home literacy environment’ to refer to the subset of environmental factors thought to be most germane for literacy growth” (Johnson et al., 2008, p. 446).

**Literacy event.** Any occasion in which reading, writing, drawing, word play or the discussion of reading, writing, drawing, or word play occur (Barnhill & Harquist, 2010).

**Scaffolding.** A learning event in which an experienced individual guides, supports and shapes actions of a novice who, in turn, internalizes the expert’s strategic processes (Donato, 1994).
**Siblings.** Children who live together in the same household over 50% of the time including step-siblings, half-siblings, adopted siblings, and siblings with the same mother and father.

**Zone of proximal development.** According to Guberman (1996), “the difference between what children are capable of doing on their own and what they can do with the assistance of an adult or more capable peer” (p. 208).

**Assumptions**

This study was based on the following assumptions:

1. Many children enter school unprepared (Kirkland & Patterson, 2005; Pullen & Justice, 2003).

2. The home is a powerful influence on the development of oral language and early literacy skills (Frijters, Barron, & Brunello, 2000; Molfese, Modglin, & Molfese, 2003; Morrow, 1990; Neumann et al., 2008; Neuman & Roskos, 1992; Roberts, Jurgens, & Burchinal, 2005)

3. Survey is a useful instrument in collecting data (Creswell, 2013; Fowler, 2002).

4. Parents are in the position to report accurate observations of what happens in the home environment (Frijters, Barron, & Brunello, 2000; Molfese, Modglin, & Molfese, 2003; Roberts, Jurgens, & Burchinal, 2005).

**Summary**

This chapter served as an introduction to a study on the role of the sibling relationship in the development of early literacy skills. First, the problem was stated and the claim that many children enter school unprepared was supported. Next, the purpose
of the study was stated which is to study parent observations of sibling interactions in
order to try to begin to understand if siblings play a powerful role in the development of
early literacy skills. The research questions that were used to guide the study were
presented and important terms were defined. Finally, assumptions of the study were
presented in order to allow readers to know what assumptions were taken into
consideration when conducting the study.
CHAPTER II
LITERATURE REVIEW

Introduction

The following chapter is a review of the research on early literacy, the home environment, and the role siblings play in the acquisition of necessary literacy skills. The chapter opens with an overview of the sociocultural framework; in which the study is situated. Next, a discussion on how young children become literate takes place with an examination of the research on early literacy and the impact of the home literacy environment. It is followed by research on the social, emotional and cognitive effects siblings have on one another. The chapter concludes with what we know to this point about the role siblings play in literacy development.

Sociocultural Framework

In recent years, scholars from a number of traditions have converged on a sociocultural approach to studying literacy. Sociocultural learning theory explains how cognitive functioning is related to cultural, institutional, and historical context. This study is situated within the sociocultural learning theory because the act of reading does not occur in isolation, but rather as a result of higher-level functions through social interactions (Tharp & Gallimore, 1988).

Perhaps the individual most identified in the area of social constructivism is Soviet psychologist, Lev Vygotsky (1962, 1978), whose social constructivist theory
explained social aspects of learning. He contends social interaction plays a fundamental role in the process of cognitive development, and that children acquire new knowledge by working with more capable others such as peers and adults. This is known as the zone of proximal development; the space between what a child can do independently and what can only be accomplished with help from a more skilled other. It is in that space that learning occurs. This support, often referred to as scaffolding (Wood, Burner, & Ross, 1976), occurs within a social context with a supportive, more capable person, not in a vacuum or by one’s self. Vygotsky’s work focused on the connections between individuals and the sociocultural context in which they interact in shared experiences (Crawford, 1996).

Vygotsky’s theory is easily applied to literacy learning since he argued that language is the main instrument for promoting thinking, developing reasoning, and supporting cultural activities such as reading and writing (1978). Bandura’s (1977) social learning theory supported Vygotsky’s earlier work. Bandura (1977) suggested behavior is the result of unceasing synergy among cognition, the environment and behavior. The significance of imitating the behavior of others and developing one's own mental capacity is stressed in this theory. Social learning theory suggests that learning is a socially cooperative process. Conventionality to social rules is acquired through molding behaviors. In this practice, a learner is driven to achieve specific conduct through outcome expectations, in other words, expectations of distinct outcomes if an action is shaped correctly. Therefore, a beginner performs an act that concludes in accolades and approval will establish expectations of accolades and approval if s/he correctly imitates that more capable other’s action. The product of this kind of social
synergy on one's cognitive development is the action of learning. Others also believe that it is through children’s participation in activities that require cognitive and communicative functions, that nurture and “scaffold” them (Kublin, Wetherby, Crais, and Prizant, 1989). Scaffolding, a process of adjusting the support offered during a teaching session to fit the child’s current level of performance, can be used to help a child to understand how to perform a task (Piaget, 1985). Bruner and Haste (1987) eloquently described the sociocultural learning theory this way:

A quiet revolution has taken place in developmental psychology in the last decade. It is not only that we have begun to think again of the child as a social being—one who plays and talk with others, learns through interactions with parents and teachers—but because we have come once more to appreciate that through such social life, the child acquires a framework for interpreting experience and learns how to negotiate meaning in a manner congruent with the requirements of the culture. ‘Making sense’ is a social process; it is an activity that is always situated within a cultural and historical context. (p. 1)

In their description of sociocultural learning, Bruner and Haste (1987) referred to those who scaffold learning as social teachers within a cultural context. Others stress not only the sociocultural learning theory on how adults and peers influence individual learning, but also on how cultural beliefs and attitudes impact instruction and learning (Dyson, 2001; Monkman, MacGillivray, & Hernandez-Leyva, 2003; Rogoff, 1995; Tharp & Gallimore, 1988).

From this body of general research, all an extension of Vygotsky’s initial theory, a sociocultural approach to literacy emerged. Researchers have demonstrated that literacy is a complex social practice and does not come just occur at school but in other environments where someone more proficient is present (Gee, 1990; Lankshear, 1994; Willinsky, 1994). Strickland and Morrow (1989) stated it best: “Literacy is not
regarded as simply a cognitive skill to be learned, but as a complex socio-
psycholinguistic activity” (p. 3). In summary, sociocultural theory suggests that
learning, including literacy learning, is a social practice rather than an individual skill
that occur in isolation, but in learning contexts where students take an active role and are
scaffolded within their zone of proximal development by someone more experienced.

**Becoming Literate**

It is widely accepted in the field of early literacy that learning to read begins
early in life, even from birth (Cullinan, 1992; Freeman & Freeman, 1994; Lenhart, 2000;
Neuman & Roskos, 2007; Roskos & Lenhart, 2003; Strickland & Morrow, 1989). In
fact, Vygotsky (1978) proposed how thinking (or language) could materialize in a
child’s mind. He suggested that when a baby gestures or points, the parent responds,
interpreting the gesture as the baby’s first attempts to communicate. He wrote, “…the
primary meaning of that unsuccessful grasping movement is established by others. Only
later, when the child can link the unsuccessful grasping movement to the objective
situation as a whole, does he begin to understand this movement as pointing” (p. 56).
Vygotsky viewed these interactions as the social foundation that would lead to learning
and development in a uniquely human way (Karpov, 2005). So what happens next?
What is known about how young children become literate with the support of more
capable others? In the next section a brief history of the research on this process is
overviewed, followed by the research on what young children need to know for later
reading success.
Historical View of Early Literacy

The late 20th century discovery that children’s literacy development begins at a very young age has profoundly affected our understanding of early learning in the western world. It was not long ago that initial ideas about readiness to read began with the idea that children had to be at the mental age of 6.5 years (Morphett & Washburne, 1931); this belief enjoyed unquestioned acceptance, and for decades parents left formal instruction to the first grade teacher (Durkin, 1966). Today there is a general consensus that children become literate from birth and it is the parent’s responsibility to nurture this process. However, this has not always been the case. Even hundreds of years ago when most learning happened at home, parents waited until children were “ready” to read before instruction of any kind began. It is only in recent history that the role of family and home environment has changed and parents are aware of the importance of nurturing young readers and writing from birth. As with all history, a look back will connect us to where we have been and inform where we are going.

Eighteenth Century

Little is known about literacy learning in the early 1700s in the United States. What we do know comes from evaluating diaries such as the diaries of a Puritan minister in Boston, Cotton Mather. From birth, the Mather children were read to from the Bible in the morning and in the evening, and typically women introduced reading to small children in their homes, known as “dame schools.” The diaries show reading instruction was taught orally, and children mastered the alphabet in their primers before advancing to reading the Bible aloud in the home. As they were “ready” (approximately
age 5), the children would read aloud to the family during times of prayer. Men taught writing mostly to boys in “town schools,” and writing acquisition occurred later than reading (Monaghan, 1991).

**Nineteenth Century**

By the 1840s, public schools began showing up for children aged 7 and up; this marks the beginning of schooling outside of the home in the United States. Although the instructional style was strict memorization, rote learning and drill and practice, children were often divided into groups with an upper grade and lower grade together where the children who were older or more advanced helped those struggling or at a lower level. While it was not the type of social constructivism (Vygotsky, 1978) imagined, the one-room schoolhouse did have a scaffolded component built into it for children to often learn from a more experienced student. Additionally, younger students were present for the lessons of older students and, therefore, exposed to other literacy learning. Around the 1860s the country slowly became aware that children younger than 5 or 6 years of age could learn and needed an appropriate environment to do so.

**Twentieth Century**

In the late 1920s and early 1930s, early literacy entered a veritable dark age. The literature of this time was filled with research citing the correlation between intelligence (mental age) and reading achievement. Reading readiness was dominated by Maturationist’s view of development. Maturationists advocated that the appearance of a particular behavior depends on time, not on experience or environment. In other words, they were all nature; no nurture (Schickendanz et al., 1993). Morphette and Washburne (1931) published a study during this time with great impact that cemented the concept of
“reading readiness” and the “time” to learn how to read was age 6.5—first grade. Soon after, professional texts written for reading courses declared reading instruction should be postponed, and parents across the United States were not encouraged to teach their children to read (Durkin, 1966). The accepted responsibility of kindergarten was social and emotional development, and then the beginning of first grade was set aside for reading readiness with formal instruction beginning primarily in the second semester of first grade. Parents were encouraged to leave formal reading and writing instruction to the school and the first grade teacher. Durkin writes:

One outstanding impression left by many of the interviews had to do with the uneasy concern of parents about their role as educators of the preschool child in matters like reading and writing. …[T]here was an expression almost of guilt feelings as parents told about ways their children learned to read. These parents also asked many questions about warnings that had come from PTA meetings, from the teachers of older children in the family, and from newspaper and magazine articles telling parents that preschool reading would only lead to problems and confusion when school instruction began. (p. 57)

Further, one mother confessed, “[we] try to encourage learning and we had discouraged reading…but now I’ll get him books from the library if he wants them and forget what people say, and they have said plenty” (p. 57).

Around the same time some researchers (Almay, 1949, Davidson, 1931) were beginning to challenge the maturationists. For example, Davidson (1931) studied children with 4-year-old mental ages. He found that all children learned to read some words during instruction, which debunked the idea of reading readiness at 6.5 years. Almay (1949) found that the best readers in the group she studied were children whose prior experiences in kindergarten, in play, and with adults and more capable peers included experiences with reading. Both studies proved children could be literate prior
Almay’s findings also supported Vygotsky’s theory of social construction; learning takes place with more capable others and social interaction.

Even though these researchers (Almay, 1949; Davidson, 1931) had empirical findings to the contrary, reading readiness persisted and parents were still told to leave the teaching of reading to the school for decades. It wasn’t until the mid 1960s when two seminal studies conducted by Deloris Durkin (1966) turned the focus of early literacy away from reading readiness and toward nurturing preschool children’s emergent literacy. In 1956, Durkin met a child already reading prior to first grade and formal instruction. This sounds absurd today because many children enter school reading, but at that time it wasn’t considered common. Durkin (1966) was curious about what she had learned at home and what she had experienced and launched a study to learn about the home environment of children who read early. What is this date?

Findings from both studies were similar and found that the early readers had an interest in learning about print that was closely related to them, parents frequently read to their children, parents responded to their child’s inquiries about reading and writing and numbers and letters were part of their everyday lives; reading and writing occurred in the home throughout the day. This supports the idea that literacy occurs in a social context with a more capable person working within the child’s zone of proximal development. Once Durkin’s studies were published, the field of early literacy became flooded with replications and innovations on Durkin’s original design.

While Durkin documented the behaviors and habits of children who learned to read in the home environment before formal schooling begins, Clay was conducting her own studies in New Zealand. Clay added to the knowledge base by studying literacy
development and revealing concepts such as how immersion in storybook reading develops literacy acquisition and the importance of concepts about print (Clay, 1991, 2000), a major breakthrough in understanding about the literate lives of young children. Her findings were in her dissertation entitled, “Emergent Reading Behavior” (1966) and two American researchers (Teale & Sulzby, 1986) were greatly influenced by Clay’s work, borrowing from her theories for their own work and coining the term emergent literacy. Their term brought new light to the field of literacy in that it introduced the idea of a relationship between a developing child and literacy clues taken from their environment, namely in the home setting. Soon, other researchers (Ferrerio, Neuman, & Roskos, 1998; Goodman, 1985; Morrow, 1990; Schickedanz, 1999; Teale, 1986) were working in this area and broadening the understanding that interactions and influences experienced by children before ever walking foot into a school for formal instruction are beyond significant in regard to the emergence of literacy. These researchers regarded literacy as a complex activity with social, linguistic and psychological aspects much like the earlier work of Vygotsky and others. Further, these beginning behaviors were taking place in natural surroundings such as home and school, and learning to read was documented as occurring for many children well before schooling by the scaffolded support of parents, caregivers and others in the life of the young child.

**Early Literacy Today**

It is now commonly accepted that children become literate from birth. Researchers like those previously mentioned have documented that a considerable amount of literacy learning takes place early in life. Further, research shows there are necessary components for later reading success (Doyle & Bromwell, 2006; Pullen &
Justice, 2003; Smith & Ellis, 2003) beginning with Clay’s (1966) concepts of print. These skills are building blocks that provide a strong foundation in literacy (Smith & Ellis, 2003). The National Early Literacy Panel (2008) identified foundational skills that are precursors to later success in reading and writing such as oral language comprehension, vocabulary, alphabet knowledge, phonological awareness and writing, which will briefly be described here.

**Oral Language Comprehension**

Oral language is the foundation of learning to read and write. Once children begin to master oral language, they can use that language to acquire more and more complex skills. Literacy is directly related to oral language development (Neuman & Roskos, 2007; Smith & Ellis, 2003; Strickland & Morrow, 1989). Children use oral language to gain the skills necessary (e.g., phonology, semantics, morphology, syntax) in becoming literate (Doyle & Bramwell, 2006; Honig, 2007; Kirkland & Patterson, 2005; Pullen & Justice, 2003). Developing oral language and literacy skills are important because they set the ground work for a child’s success in their entire schooling careers (Pullen & Justice, 2003).

To become literate, young children need “…writing to help them learn about reading, they need reading to help them learn about writing, and they need oral language to help them learn about both” (Roskos, Tabors, & Lenhart, p. 3). Human beings naturally develop the ability to master oral language at a young age. Many researchers have found that oral language develops in the same way that we begin to arrange our ideas about the world (Honig, 2007; Kirkland & Patterson, 2005; Pullen & Justice,
2003). For example, we use our abilities to interact socially in order to develop oral language.

Researchers (Mol, Bus, & de Jong, 2009) conducted a meta-analysis that examined to what extent interactive storybook reading stimulated oral language development. They found children’s oral language skills advanced as an outcome of interactive reading inventions. Results showed that children’s oral language improved from interaction before, during and after shared reading groups.

Another group of researchers (Isbell, Sobol, Lindauer, & Lowrance, 2004) found that storytelling and story reading influence the development of oral language. Most early childhood interactions are based on story reading, but the researchers found that adding storytelling would assist children in expanding oral language and receptive language skills.

Studies have shown (Colorado, 2006; Lenhart, 2000) that siblings often read and engage themselves in early literacy events with children’s literature. They also help one another form ideas about the world they live in; therefore, siblings too, help stimulate oral language development.

**Vocabulary**

Vocabulary refers to the words an individual knows and can use in speaking (expressive vocabulary) and/or recognize in listening (receptive vocabulary). Children require vocabulary exposure to use language proficiently. From age 3 and up, they should gain at least 2,500 words per year (Biemiller & Slonim, 2001). Speaking and listening skills learned in the preschool years are crucial to future reading and writing achievement and school success (Roskos, Tabors, & Lenhart, 2009).
Research shows that children’s vocabulary abilities at age 3 predict future reading comprehension (Biemiller, 2003; Hart & Risely, 2003). Much of the research on vocabulary acquisition highlights a disturbing disparity that exists among children of varying backgrounds. Most children are born social and competent, but unfortunately, some children are not afforded the same opportunities that others are (Biemiller & Slonim, 2001; Hart & Risley, 2003). In order to fully understand vocabulary acquisition, it is helpful to look at the juxtaposition of children of differing backgrounds.

Hart and Risley (2003) conducted a longitudinal study with the goal of explaining the immense differences in rates of vocabulary growth among 4-year-olds. Hart and Risley (2003) found there were many disparities in language development among white middle class children and their underrepresented peers (e.g., low socioeconomic background, minorities, etc.). The data indicated that by age 4, the typical child in a welfare family will have 13 million fewer words of cumulative experience than the average child in a working-class family (Hart & Risley, 2003).

Biemiller and Slonim (2001) studied root word vocabulary in two samples. They found that children from a low socioeconomic background acquired 5,200 root words by the end of second grade, while children from advantaged, upper-middle-class families acquired dramatically more root words by the end of second grade—6,200 words. Clearly the socioeconomic bracket in which children are born into typically dictates the rate at which oral language and vocabulary are learned. The vocabulary gap begins at a very early age and continues to widen as children advance in their school careers (Biemiller & Slonim, 2001; Hart & Risley, 2003).
We know that vocabulary development is an important early literacy skill and that children require proficient models in order to acquire and build on their expressive and receptive vocabularies. The small body of research on siblings (Lenhart, 2000; Colorado, 2006) and literacy suggests that siblings help to expand one another’s vocabularies. More research is needed on what patterns of behavior occur among siblings that allow them to acquire the skills necessary (e.g., oral language, vocabulary, print knowledge, etc.) in becoming literate.

**Alphabet Knowledge**

Alphabet knowledge consists of the ability to retrieve letter names and sounds quickly and correctly. Letter knowledge demonstrates early literacy exposure, helps children connect speech and print, and expedites the procurement of phonemic awareness. Children use their letter-name knowledge to learn letter sounds. It is important they become proficient at this so more attention can be given to decoding and storing words in memory, which lays the groundwork for later word reading (Both-DeVries & Bus, 2008).

There is very little research focusing solely on alphabet knowledge, perhaps because it is a low level technical skill. But the studies that are available prove that it is important. For example, in a meta-analysis of print exposure, Mol and Bus (2011) found that letter-name knowledge is a strong predictor of future reading and spelling achievement throughout elementary school. Further, in a study on the development of letter-name and letter-sound knowledge a strong relationship was found between letter-name knowledge and letter-sound knowledge (McBride-Chang, 1999). Children
typically acquire the knowledge of letter-names prior to letter-sounds, and consonant letter sounds are easier to learn than vowel sounds.

At the beginning of the literacy process, children need rich exposure by proficient models to alphabet letter names and sounds as tools for acquiring phonemic awareness and understanding the alphabetic principle (Neuman, Roskos, Wright, & Lenhart, 2007). As with the other essential elements of early literacy (e.g., print knowledge, oral language, etc.), older siblings may be able to model alphabet knowledge for their younger siblings in order for them to acquire the skills necessary in becoming literate.

**Phonological Awareness**

One of the major precursors to literacy is phonological awareness (Doyle & Bromwell, 2006; Neuman & Roskos, 2007; Roskos & Lenhart, 2003; Strickland & Morrow, 1989). Phonological awareness is measured by tasks that require a child to reflect on or to manipulate the component sounds of spoken words (Goswami, 2001). Phonological awareness plays an important role in learning to read and in the act of reading (Piper, 2003; Roskos, Tabors, & Lenhart, 2009; Smith & Ellis, 2003). Smith and Ellis (2003) stated:

> When children learn to read, they learn to associate the sounds or oral language with the written combination of letters that make a phoneme. When they have mastered all the individual phonemes, children have an ability to “sound out” any given letter combination. They eventually move from piecing individual phonemes together as they read a word, to eventually blending the letter combinations such as 'cra’ in crackle. (p. 4)

Without mastering phonological awareness, it is difficult for children to acquire other important early literacy skills. Research has established the causal role of phonological
awareness in reading attainment since it allows children to understand the alphabetic principle—that sounds can be represented by letters (McBride-Chang, 1999). Rapid automatic naming and phonological memory are also implicated in phonological awareness since these abilities can support or constrain focused attention to sounds in language (Torgensen, 2002).

A recent study (Cunningham & Carroll, 2015) evidenced that there is a direct connection between phonological awareness and the ability to read accurately and children with poor phonological awareness skills are at more danger of developing literacy deficits than children with poor language skills. Phonological awareness is not only a major factor in reading, but also in learning to spell/write; in a study conducted by Krajewski, Schneider, and Nieding (2008) phonological awareness was responsible for 45% of variance in first grade spelling performance.

Phonological awareness is another early literacy precursor that requires proper demonstration by a capable model in order for children to acquire this skill set necessary to become successful readers. As evidenced previously (Colorado, 2006; Lenhart, 2000), siblings are natural models and can help one another build the skills that are important in becoming literate, including phonological awareness.

**Print Knowledge**

Early literacy also requires print knowledge. Print knowledge is children’s awareness of the forms and functions of written language (Pullen & Justice, 2003; Roskos, Tabors, & Lenhart, 2009; Smith & Ellis, 2003). It includes conceptual knowledge of the purposes and conventions of print; concept of work; print awareness; and knowledge of reading terms, rules, and procedures. According to Pullen and Justice
(2003), a child with well-developed print awareness knows several important things that are necessary in learning how to read:

(1) the print tells the story, (2) text on a page is read from left to right, (3) progression through text moves from the top of the page to the bottom of the page, (4) when one page of text is read, the story continues on the following page, and (5) the white spaces between groups of letters represent a break between spoken words or word boundaries. (p. 89)

Print concepts are imperative for children to understand before they begin decoding written language (Roskos, Tabors, & Lenhart, 2009; Smith & Ellis, 2003; Zucker, Ward, & Justice, 2009).

Print knowledge is linked to reading success, suggesting that it may be a proxy for print exposure and/or other early reading skill domains such as alphabet letter knowledge (Lonigan, Burgess, & Anthony, 2000). Given the scope of print knowledge in terms of specific abilities and skills related to learning to read, it is necessarily a large part of early literacy embedded in shared reading and read aloud activities that expose children to the nature and function of written language—stories, texts, sentences and words (Justice & Vukelich, 2008).

An observational study (Neumann, Hood, & Ford, 2013) looked into the frequency of mother-child environmental print referencing and its effect on several emergent literacy skills including print knowledge. The researchers found that mothers referencing environmental print had a positive effect on children’s print concepts. Other studies (Cabell & Justice, 2008; Justice & Ezell, 2000; Lovelace & Stewart, 2007) have found that caregivers referencing print during storybook reading also has a positive influence on children’s print knowledge.
Siblings have the capacity to reference print for one another. In Lenhart’s (2000) study on siblings, she found that the older sibling (Hannah) helped the younger sibling (Emma) learn about print. “Pointing allowed Hannah to match the speech to the picture, making connections and providing a scaffold for Emma” (Lenhart, 2000, p. 82). Older siblings clearly have the capacity to help caregivers and teachers impart print awareness on younger siblings.

**Writing**

Initially children begin to write nonsense shapes that are continuous lines unlike letters that are distinct from one another. As children’s writing skills advance, they begin to make forms in a left-to-right directional pattern that are more like authentic letters and words (Levin & Bus, 2003). Early writers create replicas of writing examples that they are exposed to in their environment such as books, lists, signs, etc. (Rowe, 2008). “Providing preschoolers with rich writing experiences can help to lay a foundation for their later reading and writing success; with appropriate scaffolding, early writing provides support for children's overall literacy development” (Cabell, Tortorelli, & Gerde, 2013, p. 650).

The importance of scaffolding and praising preschoolers’ attempts at writing has been well recognized by researchers (Aram & Levin, 2004; Bindman et al., 2014; Levin & Bus, 2003). Writing attempts should be supported and applauded long before traditional writing begins.

In a recent study, researchers (Bindman et al., 2014) found that caregivers who gave their children high levels of writing support had children with higher fine motor and decoding skills. Other researchers (Aram & Levin, 2004) have found that children
whose mothers assisted them with early writing skills (e.g., graphic formation of letters, explaining orthographic fundamentals) and encouraged independent attempts at writing attained higher overall literacy rates in kindergarten and beyond.

As the aforementioned research suggests, caregivers scaffolding, encouraging and praising writing attempts by children increases those children’s overall literacy levels. According to the small body of research on siblings and literacy (Colorado, 2006; Lenhart, 2000) siblings naturally scaffold one another and can therefore assist caregivers in the encouragement and support of early writing skills in the home.

Literacy begins long before a child can read their first word. Children must master oral language, have a sense of phonological awareness, be aware of letters and the alphabetic principal, gain print awareness and then synthesize these skills in order to read their first word (Doyle & Bromwell, 2006; Pullen & Justice, 2003; Smith & Ellis, 2003).

**Home Literacy Environment**

Social constructivist theory, as noted earlier in this chapter, is the idea that children learn as the result of interactions between the child and their social environment. These interactions involve people—parents and teachers, playmates and schoolmates, brothers and sisters. But they also involve physical artifacts, such as books or toys, and the practices and routines they are engaged in at home, in a classroom or elsewhere. Vygotsky’s theory regards children as active participants in interactions and it is here they construct knowledge, skills, and attitudes.

In the early 1960s, Durkin (1966) shared what she learned about the homes of children who read prior to formal schooling. As reviewed earlier, the thought of
children reading before formal reading instruction was not a common conception at that time. Durkin’s study illuminated the characteristics and importance of the home environment. She found the environment in the homes of early readers was conducive to literacy development. For example, books such as alphabet books, picture dictionaries, and basal readers were made available to children in their homes. Many of the homes had a blackboard, sometimes with magnetic letter manipulatives and environmental print was present in the homes of early readers. She also found that interactions in the home were important, too; such as family storybook reading, and rereading the same stories over and over.

Over the past two decades a body of research has emerged on the Home Literacy Environment (HLE) and the important role it plays in early literacy development (Frijters, Barron, & Brunello, 2000; Molfese, Modglin, & Molfese, 2003; Roberts, Jurgens, & Burchinal, 2005). Researchers in this area of study have looked at the physical environment such as a print rich environment with many opportunities for drawing, writing and interacting with age appropriate literature, as well as interactions among family members (Roberts, Jergens, & Burchinal, 2005).

The physical environment of the home is an important factor in the HLE. Home environments that give children access to literacy tools (e.g., books, writing materials, art supplies, etc.) promote increased use of the tools, which leads to advancements in literacy progress (Morrow, 1990; Neuman & Roskos, 1992; Neumann et al., 2008). Having quality books available for children in the home also increases the amount of time that children are engaged in literacy activities (Morrow & Weinstein, 1986; Neuman, 1999).
The use of space also promotes literacy in HLEs (Neuman & Roskos, 1997; Neuman, Roskos, Wright, & Lenhart, 2007). Small, distinct spaces within the home (e.g., nooks, niches, etc.) promote more communication and collaboration with peers and adults (Morrow, 1988). “Physical design features such as access to literacy tools and resources and arrangement of space and materials may help to focus and sustain children’s activity, thus providing greater opportunity to engage in language and literacy behaviors” (Neuman et al., 2008, p. 161).

The physical home environment in Lenhart’s (2000) study played a prominent role in the literacy success her children experienced. She states:

> Overall, it was the availability of books and writing materials in the physical environment and the standard set in the home valuing reading as an interesting, worthwhile, and exciting activity that set the tone for virtually all of the events in the study. Having hundreds of books throughout the home on numerous topics, interests, and reading levels paved the way for the natural onset of literacy experiences between the siblings. (p. 46)

The environment that Lenhart depicted in her study shows how the HLE triggers literacy events for children.

In addition to the physical environment of the home, interactions between family members are an important part of the home environment. There are ranges of activities that caregivers undertake with young children that have a positive impact on their literacy development. For example, reading with the child, teaching songs and nursery rhymes, painting and drawing, playing with letters and numbers, as well as teaching the alphabet and numbers.

Neumann (2008) conducted a study focused on parents during interactions with their child that made use of environmental print and joint writing activities. They found
that the scaffolding approach—“the use of tools or techniques to allow a child to achieve a goal that would otherwise be beyond his/her unassisted efforts” (Brown et al., 2008, p. 313)—and incorporating environmental print are effective means for supporting early literacy skills, particularly emergent writing skills, alphabet knowledge and print motivation.

Many researchers have documented the beneficial literacy accomplishments that come out of family storybook reading (Cullinan, 1992; Owocki & Goodman, 2002; Strickland & Taylor, 1989). Strickland and Taylor (1989) provide us with several benefits to family storybook reading:

First, there is an atmosphere of success. The child acquires spoken language in a warm, rewarding atmosphere. Second, children acquire spoken language in an atmosphere that is largely child centered. Adults use language with the child and interact individually with the learner. Third, children acquire spoken language in a meaningful context. First language learning and concept development are always related to meaningful activities, objects, and situations in children’s environments. Finally, in first language learning children are presented with the whole system of what is to be learned. All of the subsystems or components of the language are presented as they exist as an interrelated, integrated whole. (p. 28)

Children learn when they are stimulated by specific academic activities in both language and literature; storybook reading provides both of these.

Jeynes (2005) conducted a meta-analysis of 50 studies and found that types of parental interactions that required a large investment of time, such as communicating and/or reading with the child had a significant impact on educational achievement. Reading and communicating with children appear as important factors of parental involvement.
The findings from a range of studies are consistent in the observations that the HLE is a major factor in children’s literacy development. Informal literacy experiences with family members, access to literacy tools and the physical set up of the home are all important stepping stones in the path to becoming literate.

**Siblings**

The focus of this section is on the nature and dynamics of young children’s relationships with siblings and the impact they have on one another. First, sibling dynamics will be overviewed and then the focus will shift to how relationships with siblings can affect social, emotional, cognitive development. The section ends with a review of research on siblings and what is known about their influence on one another’s literacy development.

**Nature and Dynamics of Children’s Sibling Relationships**

There are many dynamics that take place within sibling relationships. It is important to note that sibling relationships do not occur in a vacuum. Rather they occur within a larger nuclear and extended family that is part of a larger community and culture (Tucker & Updegraff, 2009). There are two types of dynamics that exist among siblings. One is complementary interactions, which are interactions that take place between parent and child where the parent is the authority and the child the non-authority; complementary interactions tend to be hierarchical in nature (Dunn, 1993, Howe, & Recchia, 2005). The second type of interaction is reciprocal interactions where individuals are viewed as equal and take matching roles (Dunn, 1993). One of the unique aspects of sibling relationships is that they can include both complimentary, when one sibling takes authority, and reciprocal, when the sibling roles are mutual.
For example, if older siblings are participating in care-giving (complementary) activities with the younger siblings, then the siblings are having dissimilar experiences. If the siblings are engaging in pretend play (reciprocal), then the siblings are having similar experiences (Dunn, 1993; Howe & Recchia, 2009). In another study that focused on siblings, Dunn and Plomin (1990) learned that mothers are consistent in their treatment of their children of the same age. They contend siblings are different because they are influenced by how they perceive their parents relating to their siblings. In other words, Dunn and Plomin argue it is the perceived differences in treatment that makes a difference, not the treatment itself.

Siblings are very adept at identifying situations in which they are treated differently by parents, and when they do, they consider it a lack in fairness. Non-shared experiences are what lead to individual differences in siblings (Kramer & Conger, 2009) and often, resentment. Those differential experiences that are judged to be unfair can lead to poorer sibling relationship quality, individual wellbeing and parent/child relationships (Kramer & Conger, 2009). While nonshared experiences can have negative complications, shared experiences build unique forms of support and understanding (Kramer & Conger, 2009).

Siblings share many things that influence their development such as genetics and environment (Bandura, 1977). In general, most social learning theories suggest that in addition to learning through their own behaviors and actions, individuals form ideas and learn new behaviors through the observation of others (Whiteman et al., 2009). For example, older siblings model behaviors for younger siblings. The siblings spend a great deal of time with one another and therefore the younger sibling is exposed to the
older sibling’s behaviors over and over again. The same goes for older siblings scaffolding younger siblings’ literacy development. Older siblings can often interpret the communications of their younger siblings; this occurs long before the younger child has fully developed language skills. Colorado (2006) suggested:

The intense connection shared by the siblings gave them the necessary insight to understand what their younger sibling was trying to convey. And they were able to communicate with them or for them when the younger siblings used broken (incorrectly conjugated or incomplete sentences, or lack of fluency) or confusing language by “filling in the blanks” in order for the message to be clear. (p. 67)

In this study the connection between siblings is highlighted by the intensely intimate relationship of the sibling pairs. Albert Bandura (1977) proposed that an effective model must attract attention in order for imitation to occur. Their model must have attractive qualities (e.g., power, mastery, etc.), frequency of contact and must be similar to the self. Also, the modeling process involves several steps to occur successfully: (1) attention, (2) retention, (3) reproduction and (4) motivation. Older siblings are natural models for younger siblings in that they possess power and mastery and they certainly have frequency of contact.

Another dynamic that takes place within the sibling relationship is deidentification. Deidentification refers to the tendency of siblings to select different niches and development of different personal qualities in order to define themselves as unique (Kramer & Conger, 2009).

There are many theories which offer different explanations as to why deidentification occurs but they all center on the idea that it helps protect siblings from social comparison, rivalry, envy and resentment (Feinberg, McHale, Crouter, &
Cumsille, 2003; Schachter, Shore, Feldman-Rotman, Marquis, & Campbell, 1976; Whiteman, Becerra, & Killoren, 2009). A group of researchers led by Schacter (1976) conducted two studies examining sibling deidentification. They found that deidentification occurred at its highest levels between first and second born offspring. However, it did not occur as much with “jump pairs” (e.g., first and third born siblings). In another study, Whiteman and Christianson (2008) found that 40% of secondborns and 31% of firstborns reported trying to differentiate in some way.

Social Development

Sibling relationships provide an important and unique context for children’s social development (Graham & Coplan, 2012). The types of social understanding that are developed in the context of sibling interactions are not always pro-social in nature. For example, social understanding may be demonstrated through interactions perceived as annoying, manipulative or irritating. Although aversive, these interpersonal processes may be sophisticated, reflecting not only a clear understanding of the siblings’ unique sensitivities and vulnerabilities, but also skills in taking advantage of another in order to advance one’s own position (Kramer & Conger, 2009). For example, the ability to successfully persuade, fool, irritate or embarrass a sibling may indicate well-developed perspective taking skills; skills that may not be demonstrated quite as well or as early in other social relationships. Even 2-year-olds have been observed using their unique knowledge to tease, annoy or frustrate a sibling (Dunn, 1993). Conversely, siblings can be sensitive and caring about one another’s development and readiness. In Colorado’s (2006) study, the older siblings knew that what their little brother/sister said or wrote was incorrect, but rather than pointing it out, they recognized their attempts at
communicating and went along with what their sibling said. Colorado (2006) observed an older sibling recognizing that her younger sibling incorrectly responded to a homework assignment. In response, the older sibling knew the answer was incorrect but didn’t verbalize this to the younger sibling as to preserve her self-esteem and social standing (in front of the adults). Behaviors that siblings engage in with one another are often repeated in different venues.

The sibling relationship affords opportunities for children to demonstrate understanding of their social worlds (Dunn, 1993). Howe et al. (2005) conducted a study of kindergarten children’s communicative strategies employed to create shared meanings in pretend play with either an older or younger sibling. They found that the degree of sophisticated interaction between siblings reflects the interplay between aspects of children’s social and cognitive development.

**Emotional Development**

Most children spend more time interacting with their siblings than with parents, and children are involved with their siblings every day in multiple ways. The amount of time siblings spend together in constructive activities predicts self-esteem for both older and younger siblings (Stormshak, Bullock, & Falkenstein, 2009). The types of socio-emotional competencies that are required of children for successful sibling interactions are considered to be more sophisticated and complex than competencies required for other relationships, especially parents. Literacy events that occur among siblings help to boost each child’s self-esteem (Lenhart, 2000; Stormshak et al., 2009).

Self-regulation is the ability to control behavior during stressful situations, maintain focused attention, and regulate underlying reactivity. Self-regulation is rooted
in Vygotsky’s (1962) work. According to Vygotsky, after children master self-regulation, they become supervisors of their learning and behavior by attending in a deliberate way. He maintained self-regulation has the ability to transform children’s cognitive, social and emotional behaviors. Given the nature of the sibling relationship, it seems logical that self-regulation skills would develop in the context of positive sibling relationships. Stormshak and colleagues (2009) found that positive sibling relationships are related to a child’s ability to self-regulate. In developing the self-regulation skills, siblings develop a closer bond with one another. These sibling bonds have been shown to be helpful to young children coping with family transitions and stressors such as divorce (Jenkins, 1992). Further, sibling affection may curtail the level of internalizing behavior problems faced by children experiencing significant stressful life events (Kramer & Conger, 2009).

Graham and Coplan (2011) conducted a study investigating the moderating role of sibling relationship quality in the associations between shyness and indicators of socio-emotional adjustment in early childhood. They found that a close sibling relationship might buffer shy children from some negative socio-emotional outcomes. Also, among children with closer sibling relationships, relations between child shyness and a tendency to internalize problems at preschool were reduced. In contrast, more negative sibling relationships seemed to exacerbate these associations (Graham & Coplan, 2011).

**Cognitive Development**

Rogoff’s (1990) socio-constructivist model of cognitive development provided a framework for considering how children’s development is facilitated within the context
of close social relationships. Rogoff’s work advanced the notion of Vygotsky because she claims guided participation as one way that a more skilled individual may guide the learning of a less skilled or knowledgeable partner.

Azmitia and Hesser (1993) researched older siblings’ and peers’ influence on young children’s cognitive development. They found that younger siblings performed better on a task when taught by an older sibling than when taught by a familiar peer. Their conclusions support the fact that siblings are important agents of cognitive development.

Howe and Recchia (2009) investigated sibling teaching and learning behaviors. Findings highlight the reciprocal nature of sibling teaching and learning. They suggested encouraging child teachers to employ cognitive strategies that convey critical information about the task to learners that may enhance the positive tone of the interactions and make the learners active participants in the task. “Siblings particularly have been found to be efficient ‘teachers’ of early literacy practices” (Gregory, 2004).

Younger siblings have the advantage of interacting with an older, more experienced child; this seems to promote development of their cognitive skills. Older siblings also benefit from these interactions, as they are at a developmental advantage in terms of their ability to direct and control interactions; this can be either constructive (e.g., caretaking behaviors) or destructive (e.g., aggressive behaviors). The older siblings may have greater experience teaching their younger sibling than vice versa and thus may be more attuned to their younger sibling’s cognitive competence. In Lenhart’s (2000) study, her older daughter Hannah seemed to possess knowledge of Emma’s (younger sibling) cognitive competence. “…often [Hannah] would move opposite
Emma and hold the book to her ‘audience’ so Emma could see it as she read, even if that meant telling the story upside down” (Lenhart, 2000, p.78).

The sibling relationship affords children many opportunities to foster one another’s cognitive development due to their intense, highly affective, and long common history (Dunn, 2005). As a result, siblings know one another intimately and gain an understanding of how prior shared experiences, knowledge, beliefs and emotional history may be used to infer one another’s cognitive styles (Howe & Recchia, 2009). Older siblings who are skilled in their style of instruction and their ability to scaffold learning in a developmentally appropriate manner can enable younger siblings to achieve developmental tasks at a relatively younger age.

**Siblings and Literacy**

The research on siblings clearly shows they influence one another in multiple ways. The review to this point demonstrates the intense connection siblings have and how it impacts their social, emotional and cognitive development. In this next section the lens is narrowed on the sibling relationship and how they serve as teachers and learners in the area of literacy.

Siblings often work naturally within the zone of proximal development for one another as well as influence each other’s learning and cultural beliefs. Siblings are such an intimate part of a child’s life that they should be included specifically in the list of teachers. Researchers have seldom examined, or even mentioned the sibling relationship in regards to siblings acting as the more advanced learner for one another, or as the teacher of cultural context. Lenhart (2000) stated:
Even though Vygotsky argued over 50 years ago that social interaction with a more “competent” member of one’s society is the means by which cultural knowledge is transmitted and acquired, researchers have rarely taken siblings to be among those competent members. An older sibling may perhaps be crucial for developing skills in the “zone of proximal development” of a younger sibling. (p. 11)

Older siblings often act as the more advanced learner and impart new knowledge on their younger sibling(s), thus creating the environment where directed and guided interaction can occur. Siblings share many environmental experiences and construct meaning together. Often the older sibling is able to explain discrepancies that occur in the environment for younger siblings (Dunn, 1993).

Few researchers have studied the sibling relationship and the role of literacy. Recently there has been a focus on research that centers on the knowledge the child brings to the situation and how that knowledge changes based on interactions with others, either adults or children (Gregory, 2001). There is a teaching-learning practice that occurs when siblings interact (Brody, Stoneman, & MacKinnon, 1982; Ervin-Tripp, 1980). These interactions often promote and sustain literacy learning (Goldfarb, 2000; Gregory, 2001; Volk, 1999). Often, the older sibling acts as the teacher and the younger sibling as the student. However, Gregory (2001) noticed both children learn during the interaction (2001) because the younger child often propels the older child into a deeper level of understanding of the information.

Some have examined the interactions of siblings with regard to early literacy development. Smith (1993) revealed that older siblings who taught their younger brother or sister developed greater reading and language achievement than other children. Lenhart (2000) studied the sibling teaching-learning process as it occurred
between her daughters, Hannah and Emma. Several important interactions were observed:

1. The home is a powerful role in shaping sibling literacy interactions.

2. Literacy served as a social function for the sisters; it was used daily to connect and build relationships between them through shared interests or play activity (Lenhart & Roskos, 2003).

3. Older siblings can share their knowledge about literacy with younger siblings in instructive and sensitive ways.

4. The younger siblings learning was constructivist in nature as she connected new information with things she already knew.

5. The younger sibling had a strong desire and motivation to be a part of the “literacy club” (Lenhart, 2000).

Colorado (2006) conducted a qualitative study of five sibling pairs during literacy activities. All four dyadic gender possibilities were represented. She found that all five-sibling pairs were involved in literacy activities including: reading together, writing together, helping with homework and assisting with phonics or spelling. The researcher also found that the older siblings scaffolded the younger siblings’ literacy development by use of language, and in several cases, the older sibling had extensive knowledge of the younger sibling’s reading level. For example, she notes that older siblings seem “to know when to point out their little brother or sister’s errors, and when to let them go so as not to hurt their self-esteem and not discourage future attempts” (p. 64). She went on:
Older siblings serve as a connecting link for their younger siblings. They are able to understand their younger sibling’s attempts at communication, whether oral or written, and are able to complete any gaps in order to make it comprehensible to a general audience. They also scaffold to assist their younger siblings’ in writing, book selection and use of language. (p. 71)

The older siblings in Colorado’s study supported earlier research by serving as a more-proficient model to their younger siblings and by supporting literacy events in the home.

Gregory and Williams (2001) studied siblings and literacy in multilingual homes and found that often, children in these homes were more likely to read with siblings than parents. They contend that siblings may be a significant bridge between school and home, especially in families where the parents are less familiar with the school’s language of instruction.

The researchers suggest that the type of complimentary learning activities the siblings engaged in are unique to child-child relationships and are very different from the typical teacher/child or parent/child scaffolding process, where the more capable person guides the learner. Additionally, Barnhill and Halquist (2010) studied the literacy interactions of a set of sibling girls and found both subtle and obvious relational influences on one another. Like those before, the researchers found that the older child skillfully scaffolded the younger child’s learning and that the sisters were conduits and equally benefitted from the interactions with one another.

Finally, Sokal, and Piotrowski (2011) surveyed parents, asking if the siblings at home had engaged in a number of activities in the home over the previous 24 hours. Reading together was the most frequently reported sibling-based activity second only to watching television. Findings indicated that the majority of children participated in a variety of literacy activities with their siblings, and about half of the siblings read
together on a regular basis without a parent present. The parents also reported that usually the older siblings read to the younger siblings, which supports earlier work (Barnhill & Halquist, 2010; Colorado, 2006; Lenhart, 2000; McHale, Ji-Yeon, & Whitman, 2006). However, Sokal and Piotrowski (2011) reported children from families with three or more children were less likely to read with their siblings.

The role of sibling’s impact on literacy development is under-researched, especially when there is a clear line of study that demonstrates siblings do impact one another’s literacy development. Despite the handful of studies conducted in the area of siblings and literacy there is much we don’t know. So far a number of the studies have been conducted by the parent-as-researcher (Baghban, 1984; Barnhill & Halquist, 2010; Bissex, 1980; Cook, 2005; Lenhart, 2000). Others, like Sokal and Piotrowski (2011), have researched the sibling interactions of other children, but these studies are rare; especially those that seek out the parent’s observations. Even more rare are requests for parent observations of siblings and literacy in the home environment. Amidst this growing body of research, questions still remain.

Understanding the “synergy” Gregory and Williams (2001) suggested requires more research. For example, we know that older siblings scaffold the younger sibling, but what is the nature of that scaffolding? Do they explain how print works, or simply help them with a task? Further, what behaviors do the siblings exhibit? Is one more passive than the other? Do they encourage one another? Finally, how does the parent see the home environment they have prepared for their children? Is the parent cognizant of what impacts and encourages literacy in the home? These are they types of details yet to be documented.
Summary

Potentially the longest relationships that an individual will have with any family member, sibling relationships offer countless opportunities for affecting each other lives. Clearly, the sibling relationship provides a rich venue to illuminate our understanding of the processes involved in creating shared meanings, scaffolding, children’s social understanding, and early literacy development. This chapter outlined the rich history of early literacy, marking its beginnings in America to present day understandings about how young children become literate. Next it covered research on the impact of the home environment and concluded with a section on siblings and siblings as literacy teachers and learners. In Chapter III, the research methodology will be described.
CHAPTER III

METHODOLOGY

This chapter describes the methodology that was used for this descriptive, survey study. The purpose of this study was to examine parent observations of their children scaffolding one another in the acquisition of early literacy skills. First, the research methodology section will be described including the population, sample, instrument, and the procedures used for the study. Second, the procedure used in designing the instrument and collecting data will be explained. Finally, the validity section focuses on the reliability and validity of the instrument, the research study as a whole as well as the limitations to the study.

Research Methodology

A descriptive research methodology was used for this study to investigate parent’s observations of their children helping one another procure important early literacy skills. Specifically, it tackled the following research questions:

- What scaffolding activities do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?
- What sibling interactions do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?
What patterns of behavior do parents report when the older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

What home environments do parents report that promote early literacy interactions?

The term *survey* is commonly applied to a research design to collect data from a specific population, or a sample from that population, and typically utilizes a questionnaire or an interview as the survey instrument. Surveys are used to obtain data from individuals about themselves and are an important tool for collecting and analyzing information. They are widely accepted as a key tool for conducting and applying basic social science research methodology (Creswell, 2013; Fowler, 2002). Across the United States, surveys have become a vital part of our social fabric. The Bureau of Labor Statistics relies on household surveys to inform unemployment rates and people’s incomes and the Department of Agriculture has surveyed farmers on crop production since the 1950s (Fowler, 2014). The Gallup Poll, a widely recognized survey, reports on how Americans think and feel on particular topics, and US Census Bureau collects information on the nation’s people and economy.

Researchers have used surveys to study areas of education, too. They have gathered data on topics as diverse as the experience of math and science teachers and how they use resources (Weiss, Banilower, McMahon, & Smith, 2001) to teacher perspectives on the common core. Although a survey is not the ideal method for learning about every educational question, it is useful for exploring the understanding of many educational issues such as acquiring information about how siblings scaffold one another in the acquisition of early literacy skills in this study.
As a result of using this survey methodology for this study, understanding more about how literacy takes place in the home, what siblings are teaching one another, and how they interact. This information can lead to seeing a broader view of influences on children who are in the process of acquiring the requisite skills for becoming fully literate.

Surveys are designed to produce statistics about a target population. There are several components of a survey methodology that follow a standard format and ensure the quality of the study design. First the purpose of the research design is identified. “This purpose is to generalize from a sample to a population so that inferences can be made about some characteristic, attitude, or behavior of this population” (Creswell, 2009, p. 146). In this study, inferences will be made from information gathered from parent surveys regarding how siblings scaffold one another in early literacy events.

Another element to assure the quality of a survey methodology is to indicate why a survey is the preferred type of data collection procedure for the study. In this study, the advantages of survey design are the economy of the design and the rapid turnaround in data collection (Creswell, 2013; Fowler, 2002).

Indicating whether a survey will be cross-sectional (data collected at one point in time) or longitudinal (data collected over time) is another important aspect of ensuring the quality of survey methodology (Creswell, 2013). In the case of this study, the researcher chose to utilize a cross-sectional method as opposed to a longitudinal method due to time constraints. Based on the results of this study, further data may be collected at a later point as a follow-up study.
The last portion of the standard format that survey methodology should follow is to specify the form of data collection (Creswell, 2013; Fink, 2002). In this study, the data collection instrument was in the form of a parent observation survey. A web-based survey was created with a hardcopy, paper option also available to families who lack access to technology or prefer to fill out a paper survey. The purpose of providing alternative ways to respond to the survey is to increase the probability of a higher response rate. The online survey, while most convenient for the researcher, may not be most convenient for all participants. The researcher decided that the effort of manually entering the data, and therefore increasing responses from diverse participants, outweighs the convenience of gathering all data electronically.

Internal validity is an important consideration when using survey methodology. Internal validity is the degree to which the researcher can terminate confounding variables within the study (Creswell, 2013; Fowler, 2002). One aspect of internal validity is response bias. Response bias is the propensity of an individual to respond to items on a survey in a dishonest or misleading way. More specifically, a form of response bias is social desirability bias; this is when individuals will respond to an item in a survey that will place them in the best possible light (Creswell, 2013; Fisher, 1993; Fowler, 2002).

The researcher in this study carefully crafted the survey items to be as neutral as possible and has underscored to the participants that the survey is completely anonymous in that there are zero identifying items that can link the personal identity of the participant to his/her completed survey. Also, the researcher posed similar items on the survey in order to identify if the participant responded consistently to similar items.
External validity is the extent that the study’s results can be generalized to the larger population. Specifically, population validity is a type of eternal validity that delineates how well the sample used can be inferred to a population as a whole (Creswell, 2013; Fowler, 2002). In this study, the researcher chose to use the entire family list at three preschools serving a diverse range of socioeconomic status, culture and ability level so that it would be a more accurate representation of the larger population. Random sampling was not used because the researcher wanted to increase the odds of getting a higher response rate by approaching 100% of families at each preschool.

The two main challenges of survey research methodology are issues of sampling and of questionnaire content (Kennedy & Vargus, 2001). The next two sections will address the aforementioned challenges in detail.

**Population and Sample**

The target population for this study was parents of two or more preschool children. Non-probability, purposive sampling was used where the population is selected based on the judgment of the researcher (Fowler, 2013). The samples were selected on the basis of the knowledge and discernment of the researcher in the educational setting. Probability sampling was not considered due to limited time and resources. In order to improve population validity and collect data from a diverse group of families (Kooij et al., 2005; Kreiger et al., 2005), the researcher chose a private pay preschool in a suburban setting, an urban preschool with both Head Start and non-Head Start programs, and a rural, Head Start Program. One hundred percent of families (with
two or more children) at each preschool were asked to participate in the survey and provided with either an electronic or paper copy of the survey.

Fifty-one families were provided with a survey from the suburban, private-pay preschool; 9 families from the urban, Head Start preschool were provided a survey; 18 families from the urban (non-Head Start), university preschool were provided a survey; and 51 families from the rural, Head Start. In total, 128 from all three preschools were provided with a survey. According to Duncan Nultty (2008), a 50% response rate is regarded as an acceptable response rate in social research surveys. With this in mind, the researcher expected to get at least a 50% response rate. Sixty-two surveys were returned out of 128 surveys provided, which gave an overall response rate of 48%.

**Instrument**

One way of gathering data from a sample of people in order to collect opinions or describe characteristics are to use survey instruments. The results collected from surveys can depict relationships among variables. The results can also allow researchers to compare sub-groups within the sample through the use of statistical analysis (Fowler, 2002). The survey instrument was created for this study based on the study’s focus, which is to investigate parent observations of their children’s literacy interactions.

Upon an exhaustive search, the researcher gleaned that there was not a preexisting survey instrument or questionnaire that appropriately surveyed parents about their siblings early literacy interactions. Therefore, the researcher created a questionnaire based on the empirical research and literature available in the field of early literacy. Reliability has been defined as, “The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as
reliability” (Joppe, 2000, p. 1). Reliability is an important aspect of questionnaire design. The following guidelines for designing useful questionnaires (Leary, 1995; Schutt, 2015) were used in the design phase of the survey:

1. Use precise terminology; make it easy to understand.
2. Write the questions as simply as possible, avoiding difficult words, unnecessary jargon, and cumbersome phrases.
3. Minimize the risk of bias; void making unnecessary assumptions about the respondents.
4. Conditional information should precede the key idea of the question.
5. Do not use double-barreled questions (questions that ask more than one question but provide the respondent with the opportunity for only one response).
6. Choose an appropriate response format.
7. Pretest the questionnaire.

The researcher-created survey began with demographic information of the participants including: age range, gender, ethnicity, level of education, marital status and employment status. The survey included a section for the participant to list the age and gender of each of his/her children as well as the preschool that her/his child(ren) attended.

The statements included on the survey included a series of nine statements measuring the scaffolding that the older sibling provides to the younger sibling(s). The survey also included six statements that quantify the actual ways that the siblings interact. The survey included seven statements measuring patterns of behavior of the
siblings. Finally, the survey included 10 statements pertaining to the home literacy environment. The statements were randomly sequenced in the survey.

The participants responded to the statements with the following Likert-like scale: never, always, sometimes, frequently or always. Each response was assigned a number value (never - 1 point; seldom - 2 points; sometimes - 3 points; frequently - 4 points; always - 5 points) in order to more easily manipulate and analyze the data.

The research questions were deconstructed in order to reduce the questions to the essential constructs that the study is based on. Each research question was categorized into one of the following constructs: (1) scaffolding, (2), sibling interactions, (3) patterns of sibling behavior or (4) the home literacy environment.

All of the existing research on siblings and literacy (Barnhill & Halquist, 2010; Colorado, 2006; Lenhart, 2000; Lenhart & Roskos, 2003, Sokal & Piotrowski, 2011; Vygotsky, 1978) supported the idea that the older sibling often scaffold the younger sibling during literacy events. Using the seminal studies on siblings and literacy, the researcher broke down the construct of ‘scaffolding’ into the following statements included on the questionnaire:

1. The older sibling(s) read to the younger sibling(s).
2. The older sibling(s) explain how print works to the younger sibling(s).
3. The older sibling(s) notice the younger sibling(s) attempting print and help them.
4. The younger sibling(s) ask the older sibling(s) for assistance when trying to attempt literacy tasks.
5. The older sibling(s) break reading tasks into chunks for the younger sibling(s).

6. The older sibling(s) break writing tasks into chunks for the younger sibling(s).

7. The older sibling(s) support the younger sibling’s attempts at print.

8. The older sibling(s) acts as “teacher” to the younger siblings around reading/writing tasks.

9. When my children read/write together, the oldest sibling acts as the teacher.

Upon reviewing the literature, the researcher found that an important part of siblings and literacy are the interactions that the siblings have with one another (Barnhill & Halquist, 2010; Colorado, 2006; Lenhart, 2000; Lenhart & Roskos, 2003; Sokal & Piotrowski, 2011). The researcher broke the construct of “sibling interactions” down into the following statements included on the questionnaire:

1. When older sibling(s) are reading or writing the younger one(s) want to interact too.

2. The siblings interact together with books or other printed materials (can include online storybooks).

3. The siblings interact together with pencils, crayons, markers and/or paper.

4. The siblings see books, print and writing as something fun to do together.

5. When my children read/write together, the younger sibling is the only one who benefits.

6. When my children read/write together, they both benefit.
According to the research (Barnhill & Halquist, 2010; Colorado, 2006; Lenhart, 2000; Lenhart & Roskos, 2003; Sokal & Piotrowski, 2011), another important part of siblings and literacy is the actual behavior that the siblings display during literacy events. The researcher broke down the construct of “patterns of sibling behavior” into the following statements included on the questionnaire:

1. The older sibling reads to the younger child.
2. When the younger child “reads” the older child recognizes his efforts and encourages him/her.
3. The older child invites the younger child into reading and/or writing activities.
4. The younger sibling is passive during reading with the older sibling.
5. The younger sibling interacts with the text and the older sibling during reading/writing activities.
6. The older sibling gets excited about the younger sibling’s attempts at reading/writing.

Another important factor when examining the role of siblings in literacy development is that of the home literacy environment (Barnhill & Halquist, 2010; Colorado, 2006; Lenhart, 2000; Lenhart & Roskos, 2003; Sokal & Piotrowski, 2011). The researcher broke down the construct of ‘home literacy environment’ into the following statements included on the survey:

1. Reading is done before bedtime.
2. We have many books in our home.
3. Print is displayed in our home (e.g., lists, notes, signs, etc.).

4. My children and I go to the public library.

5. I encourage my children to read to one another.

6. I encourage my children to write thank you notes, grocery lists, signs and other types of authentic writing.

7. Reading is viewed as a fun thing to do in my home.

8. I encourage my children to read together because I think it will help both of them to become more literate.

Creswell (2013) reported that reliability and validity improve when the researcher has people with diverse backgrounds and viewpoints review the survey before it is administered. This will determine if the items are easy to understand, if items are interpreted in the intended way, and if the intent behind each item is clear.

Two common types of validity were addressed in the final stages of instrument construction—content and construct validity. Content validity includes any validity strategies that focus on the content of the test; it is essentially a method of gaging an agreement among raters regarding how essential an item is (Brown, 1996; Wilson, Pan, & Schumsky, 2012). In order to ensure content validity of the instrument, the researcher submitted the questionnaire to a content specialist in early literacy/siblings to review the statements contained on the survey.

The researcher also considered construct validity. Determining the extent to which an assessment in accurately measuring underlying traits is the goal of making sure an instrument’s constructs are valid. Construct validity of inferences that observations or measurement tools actually represent or measure the construct being investigated.
Construct validity examines the question: Does the measure behave like the theory says a measure of that construct should behave? Construct validity is essential to the perceived overall validity of the test. (Creswell, 2013; Fowler, 2002).

Prior to submitting the survey to a content specialist, only three constructs were examined (scaffolding, sibling patterns of behavior and sibling interactions) by the researcher. The content specialist felt that the constructs of scaffolding, sibling patterns of behavior, and sibling interactions were appropriately addressed by the researcher.

The content specialist communicated to the researcher the importance of the home environment that the siblings live in when addressing the topic of siblings and early literacy. The content specialist and the researcher worked together to deconstruct the research on the home literacy environment. Together, they formed the aforementioned statements to be included on the parent survey regarding the construct of “home literacy environment.”

The researcher also asked a research methodologist to review the survey. The methodologist examined the survey for (1) clarity of statements and (2) relevance of statements to the research questions and general issues with the survey. The feedback from the methodologist was used to revise the tool that was then re-submitted. The research methodologist agreed that the tool was aligned with the study’s objectives and was clear.

Once the parent survey was completed, the researcher piloted the questionnaire (individually) with three parents of differing levels of education, socioeconomic status and cultural backgrounds. The researcher asked the parents to fill out the survey in the presence of the researcher and to “think aloud” as they completed the survey so the
researcher could hear their thought processes and interpretation. Parents were specifically asked: (1) if the survey was clear, (2) if they found it easy to complete, and (3) if they had any questions or confusion while completing the survey. The parents reported that the survey was clear and easy to complete, but two of the three parents reported that some of the language was too specialized (e.g., scaffolding, literacy events, etc.). The researcher used the feedback from the parent think-aloud sessions to revise the survey in the following ways:

- Instead of using the term “literacy events” and “scaffolding,” the researcher used the words “reading/writing” and “supporting,” respectively.
- The survey was originally written at a 12+ grade reading level (Flesch-Kincaid scale), and after considering the parent feedback, the researcher revised the survey to be at an 8th grade readability level (Flesch-Kincaid scale).

By listening to the parents’ feedback, the researcher validates the assumptions about the wording of the survey and what the respondents would be reporting (Nassar-McMillan & Borders, 2002).

In order to informally test the instrument for consistency and reliability, the researcher asked the same three parents to complete the survey on two more occasions with a gap of 7 to 10 days between surveys. The three parents were not asked to think aloud on the second and third time that they filled out the survey. Ninety percent of Parent #1’s survey responses were exactly the same on all three surveys. The remaining 10% of the responses were 1 point off from their original responses (e.g., responded “seldom” instead of “sometimes,” “sometimes” instead of “frequently,” etc.). Parent #2
had 93% exact responses, 6% of responses were 1 point off, and > 1% were 2 points off among all three surveys. Parent #3 had 96% exact responses and 4% were 1 point off from original responses.

**Data Collection**

A survey was administered to a sample of parents from a variety of northeastern Ohio suburbs and cities whose children attend either private pay, or publicly funded preschools. The researcher chose to use an online survey service through Qualtrics. Qualtrics was selected because the data from the online survey is easily transferred to an SPSS data file for statistical analyses and it is the preferred online survey platform used by the university. There are many benefits to using web-based surveys. For example, Schutt (2015) stated:

> Web surveys are becoming a popular form of electronic survey in part because they are so flexible and inexpensive. The questionnaire’s design can feature many graphic and typographic elements. Respondents can view definitions of words or instructions for answering questions by clicking on linked terms. Lengthy sets of response choices can be presented with pull-down menus. Pictures and audio segments can be added when they are useful. Because answers are recorded directly in the researcher’s database, data entry errors are almost eliminated and results can be reported quickly. (p. 176)

A web-based survey was used in this study in order to collect, organize and analyze data quickly and efficiently.

The administration and teachers at the private-pay preschool as well as the university youth development center regularly used email to communicate with the families of the students at the schools. For the private-pay preschool, a link to the online survey was sent to 51 families via an email from the administration encouraging families to participate in the survey. The administration at the urban preschool sent a link to 27
(18 private pay, 9 families receiving Head Start funding) families asking them to participate in the survey.

The publically funded, rural Head Start preschool used hardcopy notes and paper newsletters in order to communicate with their families. Rather than asking families to complete an online survey, the researcher visited the school on five different occasions at the end of the school day and asked parents/guardians picking up their children to fill out a paper copy of the survey on the spot. The researcher collected 38 paper surveys (out of 51 families). The data from the paper surveys collected at the Head Start Preschool was immediately entered into the SPSS online survey so that the data would be housed in the same place and could be analyzed collectively. Paper surveys were saved in the researcher’s office for a period of 1 year upon being entered into the online survey.

A cover letter was attached to the survey in order to explain the purpose of the research, and the researcher’s contact information is provided to the participants should they have any questions or concerns. The survey was used to investigate participants’ observations of their children’s interactions with one another surrounding early literacy events as well as their home literacy environments. The survey item and cover letter are located in Appendix A.

**Data Analysis**

The data analysis consisted of ensuring that the surveys were complete and transferring the data from the web-based survey to the SPSS data file. Using SPSS, an analysis of descriptive responses was performed on each of the survey items using frequency distributions and descriptive statistics. Any surveys that had three or more
missed responses were discarded and not used in the analyses. Descriptive statistics and frequency tables were constructed in order to organize and share results of the data analysis as it pertained to the research questions.

**Limitations**

Information collected on surveys has been accused of touching only on the surface of the research field and of not having the depth that other methodologies may have. Surveys generally cannot provide strong evidence of a cause and effect relationship; rather the information gleaned from a survey can offer insight into observations, perceptions and feelings.

While the survey used in the study provides data offering insight into parents’ observations of their children’s interactions during literacy events, it will not produce the kind of data needed to create a full picture of sibling’s influences on one another in relation to the acquisition of early literacy skills.

The survey instrument was researcher developed and, therefore, would need to be used in other studies in order to substantiate its effectiveness. The sample size of 64 was not robust enough to generalize the results to the target population.

Another limitation to consider when surveying parents is their want to be “good parents” (social desirability bias). The current study found that the highest construct mean out of the four constructs was not about the siblings interacting or scaffolding one another, rather it was about the home environment. Social desirability bias might suggest that parents may have overinflated the results in regard to the construct that was about their personal home environment and not their siblings interacting with one another.
It is important that researchers in the field of early literacy continue to examine both the nature of sibling interactions as well as the processes engaged in among siblings in regard to early literacy acquisition. The hope is that this survey serves as a means to extend the small pool of research on siblings and early literacy as well as to elicit further research in the field on this topic.
CHAPTER IV
RESULTS

The purpose of this study was to examine parents’ reports of the sibling relationship as it pertains to the development of early literacy skills. Using survey method with parents from three preschool programs, this study attempted to investigate parents’ self-reporting of the patterns of siblings support one another in their journey to develop the necessary early literacy skills required to succeed in school. The previous chapter explained the research design used to study the following research questions:

1. What scaffolding activities do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

2. What sibling interactions do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

3. What patterns of behavior do parents report when the older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

4. What home environments do parents report that promote early literacy interactions?

The purpose of this chapter is to report the statistical results used to answer the above questions. The researcher used SPSS as the statistical software for conducting the analysis. The current chapter consists of descriptive statistics for the sample, results of the hypothesis, and a summary.
Descriptions of the Sample

Following is a summary of the demographics of the survey results, broken down by ethnicity, educational background, and current employment status. Ethnicity of the respondents was as follows: 76.6% Caucasian, 3.1% Asian/Pacific Islanders, 10.9% Black/African, 7.8% Other, and 1.6% Hispanic/Latino (see Table 1).

Table 1. Ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>49</td>
<td>76.6</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>2</td>
<td>3.1</td>
</tr>
<tr>
<td>Black/African American</td>
<td>7</td>
<td>10.9</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>7.8</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Over 80% (81.25%) of respondents were female and 18.75% male. The educational background of the respondents was as follows: 10.9% some high school, no diploma; 7.8% trade/technical/vocational training; 7.8% high school diploma or GED; 15.6% some college credit, no degree; 6.3% associate degree; 23.5% bachelor’s degree; 15.6% master’s degree; 10.9% doctorate degree; 1.6% professional degree (see Table 2).

The employment statuses of the survey participants were as follows: 12.5% employed for wages; 9.4% homemaker; 9.4% out of work and currently looking; 17.2% out of work but not currently looking; 7.8% self-employed; 26.6% student; 17.2% unable to work (see Table 3).
Table 2. Education

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some high school, no diploma</td>
<td>7</td>
<td>10.9</td>
</tr>
<tr>
<td>Trade/technical/vocational training</td>
<td>5</td>
<td>7.8</td>
</tr>
<tr>
<td>High school graduate, diploma or GED</td>
<td>5</td>
<td>7.8</td>
</tr>
<tr>
<td>Some college credit, no degree</td>
<td>10</td>
<td>15.6</td>
</tr>
<tr>
<td>Associate degree</td>
<td>4</td>
<td>6.3</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>15</td>
<td>23.5</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>10</td>
<td>15.6</td>
</tr>
<tr>
<td>Doctorate degree</td>
<td>7</td>
<td>10.9</td>
</tr>
<tr>
<td>Professional degree</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3. Employment status

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>8</td>
<td>12.5</td>
</tr>
<tr>
<td>Homemaker</td>
<td>6</td>
<td>9.4</td>
</tr>
<tr>
<td>Out of work, looking</td>
<td>6</td>
<td>9.4</td>
</tr>
<tr>
<td>Out of work, not looking</td>
<td>11</td>
<td>17.2</td>
</tr>
<tr>
<td>Self-employed</td>
<td>5</td>
<td>7.8</td>
</tr>
<tr>
<td>Student</td>
<td>17</td>
<td>26.6</td>
</tr>
<tr>
<td>Unable to work</td>
<td>11</td>
<td>17.2</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 4. Survey respondent breakdown by preschool site

<table>
<thead>
<tr>
<th>Site</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Private Pay Urban</td>
<td>11</td>
<td>17.2</td>
</tr>
<tr>
<td>2 Urban Head Start</td>
<td>6</td>
<td>9.4</td>
</tr>
<tr>
<td>3 Rural Head Start</td>
<td>38</td>
<td>59.4</td>
</tr>
<tr>
<td>4 Suburban Private Pay</td>
<td>7</td>
<td>10.9</td>
</tr>
<tr>
<td>Total</td>
<td>62</td>
<td>96.9</td>
</tr>
<tr>
<td>Incomplete/Missing System</td>
<td>2</td>
<td>3.1</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Data Analysis**

It is important to consider the distribution of the survey respondents when performing statistical analysis. The previous section described the demographics of the survey respondents. This section will examine response rates per site and overall, and answer each guiding research question in light of the survey results.

The urban preschool site has both Head Start and private pay families. Eighteen private-pay families at the urban preschool were provided with a survey and 11 completed the survey, a 61% response rate. Nine Head Start families at the urban preschool were provided with a survey and six completed the survey, a 66% response rate. The rural preschool site consisted of all Head Start families. Fifty-one families were provided with a survey and 38 completed the survey, a response rate of 75%. At the private-pay, suburban preschool, 50 families were provided surveys and 7 completed the survey, a 14% response rate. Overall, 128 families were provided a survey and 62 completed surveys were returned; therefore, the overall response rate was 48%. See
Table 4 for the response rate for each site. The majority (59.4%) of completed surveys came from the rural Head Start preschool, and the minority (10.9%) of completed surveys came from the suburban, private pay preschool.

**Results of Research Question #1**

**Question 1.** What scaffolding activities do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

In this study, when participants were asked to report on how often older sibling(s) support younger sibling(s) in the acquisition of early literacy skills with regard to different types of scaffolding activities, the total construct mean was 2.8. There were seven items on the survey designed to measure sibling scaffolding. See Table 5 for evidence of the relative high and low items and the mean for the construct of sibling scaffolding.

The current survey responses were given a number value as follows: Never - 1, Seldom - 2, Sometimes - 3, Often - 4, Always - 5. When examining mean responses, a mean response of 4.15 would correspond with parents observing the activity somewhere between “often” and “always.”

When the first guided research question is revisited, according to the parent observers in this survey, the following scaffolding behaviors are reported (from most commonly seen to least commonly seen): (1) when siblings read/write together, the older sibling(s) act as teacher(s) (mean response 3.64); (2) older siblings read to younger siblings (mean response 3.02); (3) older siblings support younger siblings’ attempts at writing (mean response 2.90); (4) older siblings support younger siblings attempts at writing (mean response 2.72); (5) older siblings explain how print works to the younger
siblings (mean response 2.56); (6) older siblings simplify reading tasks for younger siblings (mean response 2.34); (7) older siblings simplify writing tasks for younger siblings (mean response 2.28). In summary, the older child reading to the younger child was the highest rated item in the scaffolding construct, and the older child chunking reading tasks for the younger child was the lowest rated item. Results are presented in Table 5.

Table 5. Scaffolding of older sibling to younger sibling construct breakdown and total construct mean

<table>
<thead>
<tr>
<th>Scaffolding Statement</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: The older child reads to younger child(ren).</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>2: The older child explains how print works to the younger child(ren).</td>
<td>2.5</td>
<td>1.1</td>
</tr>
<tr>
<td>3: The older child notices the younger child(ren) attempting to write and helps him/her.</td>
<td>2.7</td>
<td>1.3</td>
</tr>
<tr>
<td>4: The older child simplifies or &quot;chunks&quot; READING tasks for the younger child(ren).</td>
<td>2.3</td>
<td>1.1</td>
</tr>
<tr>
<td>5: The older child simplifies or &quot;chunks&quot; WRITING tasks for the younger child(ren).</td>
<td>2.3</td>
<td>1.1</td>
</tr>
<tr>
<td>6: The older child supports the younger child(ren)'s attempts at WRITING.</td>
<td>2.9</td>
<td>1.3</td>
</tr>
<tr>
<td>7: When my children READ or WRITE together, the oldest sibling acts as the teacher.</td>
<td>3.6</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2.8</strong></td>
<td><strong>1.1</strong></td>
</tr>
</tbody>
</table>
Results of Research Question #2

Question 2. What sibling interactions do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

In this study, four survey items were used to measure the sibling interaction construct (see Table 6). When asked to report on how often older sibling(s) support younger sibling(s) in the acquisition of early literacy skills with regard to different types of sibling interaction, all of the parents in the current survey averaged between 3.4 and 3.8. The overall rating result was a mean of 3.6 with a standard deviation of 1.1 (items presented in Table 6).

Table 6. Sibling interaction construct breakdown and total construct mean

<table>
<thead>
<tr>
<th>Sibling Interaction Statement</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: When the older child(ren) is reading or writing, the younger child(ren) wants to interact.</td>
<td>3.4</td>
<td>1.2</td>
</tr>
<tr>
<td>2: The older and younger child(ren) work/play together with books or other printed materials.</td>
<td>3.8</td>
<td>1.1</td>
</tr>
<tr>
<td>3: The older and younger child(ren) play/work together with pencils, crayons, markers, paper.</td>
<td>3.7</td>
<td>1.1</td>
</tr>
<tr>
<td>4: The older and younger child(ren) see books, print and writing as something fun to do together.</td>
<td>3.7</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>3.6</td>
<td>1.1</td>
</tr>
</tbody>
</table>

When the parent participants in this study were asked to report on how often sibling(s) interact in the acquisition of early literacy skills with regard to different types
of interactive behaviors among siblings, parents averaged between sometimes and often (total construct mean: 3.6). There were four items on the survey designed to measure sibling interaction. See Table 6, Sibling Interaction Construct Breakdown and Total Construct Mean, which shows the relative high and low items and the mean for the construct of older sibling interaction.

When the second guiding research question is revisited, according to the parents’ self reports, the following sibling interactions are reported (from most commonly seen to least commonly seen): (1) younger sibling wants to participate when older sibling(s) is reading or writing (mean response 4.32); (2) siblings benefit from reading/writing together (mean response 4.15); (3) siblings play/work together with books and printed materials (mean response 3.97); (4) siblings play/work together with writing utensils (mean response 3.77); (5) siblings see books, print and writing as fun to do together (mean response 3.68). In summary, siblings playing together with books and other printed materials was the highest rated item in the sibling interaction construct, and the younger child wanting to interact with the older child when s/he is reading was the lowest rated item. The results are presented in Table 6.

**Results of Research Question #3**

**Question 3.** What patterns of behavior do parents report when the older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

In this study, seven survey items were used to measure the patterns of behavior construct (see Table 7). When asked to report on how often older sibling(s) support younger sibling(s) in the acquisition of early literacy skills with regard to different patterns of behavior, the total mean is 2.9.
When the participants in this study were asked to report on how often siblings display patterns of behavior promoting the acquisition of early literacy skills with regard to different patterns of behaviors among siblings all of the parents averaged between seldom and never (total construct mean 2.9). Seven items on the survey were designed to measure sibling patterns of behavior. See Table 7, Sibling Patterns of Behavior Construct Breakdown and Total Construct Mean, for evidence of the relative high and low items and the mean for the construct of sibling patterns of behavior.

Table 7. Sibling patterns of behavior construct breakdown and total construct mean

<table>
<thead>
<tr>
<th>Sibling Patterns of Behavior Statement</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:  The older child(ren) reads to the younger child(ren).</td>
<td>3.0</td>
<td>1.0</td>
</tr>
<tr>
<td>2:  When the younger child(ren) “reads” the older child recognizes his efforts and encourages him.</td>
<td>3.1</td>
<td>1.1</td>
</tr>
<tr>
<td>3:  The older child invites the younger child(ren) to read/write.</td>
<td>3.1</td>
<td>1.3</td>
</tr>
<tr>
<td>4:  The younger child(ren) is passive during reading with the older child(ren).</td>
<td>3.2</td>
<td>1.2</td>
</tr>
<tr>
<td>5:  The younger child(ren) interacts with the text and the older child(ren) during reading/writing.</td>
<td>2.6</td>
<td>1.0</td>
</tr>
<tr>
<td>6:  The older child(ren) gets excited about the younger child(ren)’s attempts at reading/writing.</td>
<td>3.1</td>
<td>1.1</td>
</tr>
<tr>
<td>7:  My children read/write together.</td>
<td>3.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Total</td>
<td>2.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>

When the third guiding research question is revisited (What patterns of behavior do parents report when the older sibling(s) support younger sibling(s) in the acquisition
of early literacy skills?), according to the parent observers in this study, the following patterns of behavior among siblings are reported (from most commonly seen to least commonly seen): (1) siblings read and write together (mean response 3.61); (2) younger siblings are passive during reading with older siblings (mean response 3.23); (3) older siblings invite younger siblings to read/write (mean response 3.17); (4) older siblings are excited by younger siblings attempts to read/write (mean response 3.13); (5) older siblings recognize and encourage younger siblings efforts to read/write (mean response 3.10); (6) older siblings read to younger siblings (mean response 3.00); (7) younger siblings interact with the text and their older sibling(s) during reading/writing events together (mean response 2.66). In summary, siblings reading/writing together was the highest rated item in the patterns of behavior construct, and the younger child(ren) interacting with the text and the older child(ren) during reading/writing was the lowest rated item. The results are presented in Table 7.

Results of Research Question #4

Question 4. What home environments do parents report that promote early literacy interactions?

When asked to report on home environment with regard to access to literacy materials, the mean construct was 4.1. There were nine items on the current study survey designed to measure home environment. See Table 8, Home Environment Construct Breakdown and Total Construct Mean, evidencing the relative high and low items and the mean for the construct of older sibling support.
Table 8. Home environment construct breakdown and total construct mean

<table>
<thead>
<tr>
<th>Home Environment Statement</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Writing materials are accessible in our home.</td>
<td>4.5</td>
<td>0.9</td>
</tr>
<tr>
<td>2: My children see me reading and writing.</td>
<td>4.4</td>
<td>0.8</td>
</tr>
<tr>
<td>3: We have many books in our home. attempting to write and helps him/her.</td>
<td>4.7</td>
<td>0.7</td>
</tr>
<tr>
<td>4: Print is displayed on our home.</td>
<td>4.2</td>
<td>1.0</td>
</tr>
<tr>
<td>5: My children and I go to the library.</td>
<td>3.4</td>
<td>1.2</td>
</tr>
<tr>
<td>6: I encourage my children to read to one another.</td>
<td>3.5</td>
<td>1.2</td>
</tr>
<tr>
<td>7: I encourage to write (thank you notes, grocery lists, signs, etc.).</td>
<td>3.4</td>
<td>1.2</td>
</tr>
<tr>
<td>8: Reading is viewed as a fun thing to do in our home.</td>
<td>4.4</td>
<td>0.8</td>
</tr>
<tr>
<td>9: Reading is done before bedtime.</td>
<td>4.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>4.1</td>
<td>.95</td>
</tr>
</tbody>
</table>

When the fourth guiding research question is revisited (What type of home environments do parents report that promote early literacy interactions?), according to the parent observers in this study, the following home environments are reported (from most common seen to least common):  (1) reading is viewed as fun at home (mean response 4.89); (2) many books are in the home (mean response 4.69); (3) writing materials are accessible in the home (mean response 4.55); (4) children see parents) reading and writing at home (mean response 4.38); (5) reading is done before bedtime in the home (mean response 4.23); (6) print is displayed in the home (mean response 4.23); (7) parent(s) encourage children to read to one another (mean response 3.58); (8)
children are encouraged to write (e.g., thank you notes, grocery lists, etc.) (mean response 3.48); (9) parent(s) and children go to the library together (mean response 3.4).

**Results of ANOVA Indicating Groups (Preschool Sites)**

**Differences Across the Constructs**

Following is the complete ANOVA for all research questions in the current study in comparison with the four preschool sites. The ANOVA table illustrates that when the separate preschool sites are examined within and between groups, no survey item shows statistical significance (>0.05%). The following are the amount of participants in each group: (1) private-pay urban - 11 participants, (2) Head Start urban - 6 participants, (3) Head Start rural - 38 participants, (4) suburban private pay - 7 participants. See Table 9, ANOVA, for a full breakdown of within and between preschool site groups for each survey item. Sum of squares, df, mean square, F values and significance are delineated for each survey item (both between and within groups).

Table 9. ANOVA with four preschool sites comparison

<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Groups</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>Between Groups</td>
<td>6.383</td>
<td>3</td>
<td>2.128</td>
<td>1.896</td>
<td>.141</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>60.600</td>
<td>54</td>
<td>1.122</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>66.983</td>
<td>57</td>
<td></td>
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<tr>
<td>2</td>
<td>Between Groups</td>
<td>5.438</td>
<td>3</td>
<td>1.813</td>
<td>1.399</td>
<td>.254</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>66.089</td>
<td>51</td>
<td>1.296</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>71.527</td>
<td>54</td>
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</tbody>
</table>

*(table 9 continues)*
Table 9. ANOVA with four preschool sites comparison (continued)

<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Groups</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Between Groups</td>
<td>2.734</td>
<td>3</td>
<td>.911</td>
<td>.504</td>
<td>.681</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>99.368</td>
<td>55</td>
<td>1.807</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>102.102</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Between Groups</td>
<td>4.491</td>
<td>3</td>
<td>1.497</td>
<td>1.286</td>
<td>.288</td>
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<tr>
<td></td>
<td>Within Groups</td>
<td>64.017</td>
<td>55</td>
<td>1.164</td>
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<tr>
<td></td>
<td>Total</td>
<td>68.508</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Between Groups</td>
<td>.776</td>
<td>3</td>
<td>.259</td>
<td>.177</td>
<td>.912</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>80.411</td>
<td>55</td>
<td>1.462</td>
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<td>Between Groups</td>
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<td>3</td>
<td>1.473</td>
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<tr>
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<td>Within Groups</td>
<td>100.427</td>
<td>55</td>
<td>1.826</td>
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<td>Total</td>
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<tr>
<td>7</td>
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<td>.149</td>
<td>3</td>
<td>.050</td>
<td>.060</td>
<td>.981</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>45.647</td>
<td>55</td>
<td>.830</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>45.797</td>
<td>58</td>
<td></td>
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</tbody>
</table>

*(table 9 continues)*
Table 9. ANOVA with four preschool sites comparison (continued)

<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Groups</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
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</thead>
<tbody>
<tr>
<td>8</td>
<td>Between Groups</td>
<td>179.448</td>
<td>3</td>
<td>59.816</td>
<td>1.909</td>
<td>.139</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>1691.655</td>
<td>54</td>
<td>31.327</td>
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<td></td>
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<td>57</td>
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<tr>
<td>9</td>
<td>Between Groups</td>
<td>2.547</td>
<td>3</td>
<td>.849</td>
<td>.317</td>
<td>.813</td>
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<tr>
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<td>Within Groups</td>
<td>147.385</td>
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<td>2.680</td>
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<tr>
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<td>Between Groups</td>
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<td>3</td>
<td>.790</td>
<td>.623</td>
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<tr>
<td></td>
<td>Within Groups</td>
<td>69.765</td>
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<td>Total</td>
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<td>.254</td>
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<td>Within Groups</td>
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<td>.974</td>
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<td>Total</td>
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<td>59</td>
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<td></td>
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<tr>
<td>12</td>
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<td>2.499</td>
<td>3</td>
<td>.833</td>
<td>.644</td>
<td>.590</td>
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<tr>
<td></td>
<td>Within Groups</td>
<td>71.129</td>
<td>55</td>
<td>1.293</td>
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<td></td>
<td>Total</td>
<td>73.627</td>
<td>58</td>
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\[\text{(table 9 continues)}\]
<table>
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<tr>
<th>Survey Item</th>
<th>Groups</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
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<th>P</th>
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</thead>
<tbody>
<tr>
<td>13</td>
<td>Between Groups</td>
<td>3.305</td>
<td>3</td>
<td>1.102</td>
<td>.650</td>
<td>.587</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>93.271</td>
<td>55</td>
<td>1.696</td>
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<td>Total</td>
<td>96.576</td>
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<tr>
<td>14</td>
<td>Between Groups</td>
<td>.170</td>
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<td>.057</td>
<td>.049</td>
<td>.986</td>
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<tr>
<td></td>
<td>Within Groups</td>
<td>63.830</td>
<td>55</td>
<td>1.161</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>64.000</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Between Groups</td>
<td>3.780</td>
<td>3</td>
<td>1.260</td>
<td>.989</td>
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<td>Within Groups</td>
<td>68.789</td>
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</tr>
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<td>Total</td>
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<td>Within Groups</td>
<td>92.425</td>
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<td>1.712</td>
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<td>Total</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Between Groups</td>
<td>5.447</td>
<td>3</td>
<td>1.816</td>
<td>1.224</td>
<td>.310</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>80.070</td>
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<td>1.483</td>
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<tr>
<td></td>
<td>Total</td>
<td>85.517</td>
<td>57</td>
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<td></td>
</tr>
</tbody>
</table>

(Table 9 continues)
Table 9. ANOVA with four preschool sites comparison (continued)

<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Groups</th>
<th>Sum of Squares</th>
<th>df</th>
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*(table 9 continues)*
Table 9. ANOVA with four preschool sites comparison (continued)

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(table 9 continues)
Table 9. ANOVA with four preschool sites comparison (continued)

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Note. *See Appendix A, Parent survey for corresponding survey items

Summary

Chapter IV presented an overview of a description of the sample, which was by-and-large comprised of parents of children participating in a Head Start preschool program (living at or below the Federal poverty level) that self-reported as providing an enriching and engaged home environment to siblings. Importantly, it appears that respondents were, perhaps, more accurate in reporting the interactions between/among the siblings (i.e. their children), thus providing more statistically accurate results. The
scaffolding construct total mean was 2.8, sibling interaction construct total mean was 3.6, patterns of behavior construct total mean was 2.9, and the home environment construct total mean was 4.1. Parent reporting of home environment was significantly higher than the other three constructs. This may be due to the personal nature of the home environment survey items in comparison to all other items relating to sibling interactions, scaffolding and patterns of behavior. This phenomenon (over-inflation of personal information on surveys) is often referred to as either self-reporting bias or social desirability bias.

Major outcomes of the parent observation survey were as follows:

1. Statistical analysis showed that, when the scaffolding construct was examined, the most statistically significant activity coalesced around the older sibling reading to and writing with the younger sibling and acting as teacher (mean response 3.64). This tells us that the parents surveyed reported that the older sibling acted as the more experienced other. This confirms what earlier researchers found in regard to social learning theory (Bandura, 1977; Vygotsky, 1962). Survey items measuring sibling scaffolding had a total construct mean of 2.8.

2. Statistical analysis shows that, when examining the sibling interaction construct, the most frequently reported activity coalesced around the younger sibling wanting to participate when older the sibling(s) is reading or writing (mean response 4.32). This supports what earlier researchers found in regard to emergent literacy, siblings and social learning (Almay, 1949; Bandura, 1977; Colorado, 2006; Lenhart, 2000; Vygotsky, 1962). When results of patterns of behavior among siblings were analyzed, the younger sibling seemed to want to rise to the challenge of emulating the
older sibling, with the most frequently reported responses occurring when the siblings worked simultaneously together, either reading or writing (mean 3.61). The frequency of patterns of behavior drops off when the younger sibling interacts with the text and the older sibling during reading/writing activities (mean 2.66). In total, the sibling interaction construct (mean 3.6) was an average, but solid, descriptor of this study and this guiding research question.

3. When patterns of behavior among siblings were analyzed, the younger sibling seems to want to rise to the challenge of emulating the older sibling, with the most frequently reported responses occurring when the siblings work simultaneously together, either reading or writing (mean 3.61). The frequency of patterns of behavior dropped off when the younger sibling interacted with the text and the older sibling during reading/writing activities (mean 2.66). Overall, the total patterns of behavior construct mean (3.0) indicate that these activities tend to impact the efforts towards early literacy.

4. When the home environment construct was examined, the most frequently reported activities coalesced around reading being viewed as fun at home (mean response 4.89). Parents self-reports of frequency dropped off when parents reported about parents and children going to the library together (mean response 3.4), possibly indicating a lack of regular commitment to library visits. However, with a mean response of 3.4, parents report that they do visit the library. These findings support earlier research on home literacy environments (Almay, 1949; Colorado, 2006; Durkin, 1966; Lenhart, 2000; Sokal & Piotrowski, 2011).

Chapter IV revisited the guiding research questions and reported descriptive statistics in regard to each guiding research question. In Chapter V, a complete
summary of results will be analyzed, conclusions will be made, implications will be discussed and paths for future research will be suggested based on the findings of this study.
CHAPTER V
SUMMARY AND DISCUSSION

Introduction

This chapter is divided into five sections: a summary of the study, conclusions drawn from analyses of the survey results, implications and recommendations for future practice and research. The summary includes a review of the problem investigated as well as the procedures used for investigation. The conclusion section will examine major findings of the study, and the implications section will include practical applications of the current study.

Summary

The purpose of this study was to examine the sibling relationship as it pertains to the development of early literacy skills. It theorized and surveyed the parents and caregivers of siblings in multiple socioeconomic situations and environments to find out if and how siblings support one another in their journey to develop the necessary early literacy skills required to succeed in school.

If siblings do, in fact, help to foster early literacy skills, then we can help preschool teachers to capitalize on this mentor-like relationship among siblings. Preschool teachers could use similar mentor models in their classrooms and help to educate parents about the powerful influence that siblings have on one another and how this influence can be used in positive ways. If parents lack the ability to learn about
fostering the sibling relationship, then perhaps preschool teachers could directly influence their students to share literacy activities with their younger siblings.

This study was conducted on the role of the sibling relationship in the development of early literacy skills. First, the problem was stated and the claim that many children enter school unprepared was supported. Next, the purpose of the study was stated which is to study parent observations of sibling interactions in order to try to begin to understand if siblings play a powerful role in the development of early literacy skills. The research questions that were used to guide the study were presented and important terms were defined. Finally, assumptions of the study were presented in order to allow readers to know what assumptions were taken into consideration when conducting the study.

This research investigated a review of early literacy literature, which suggests the home is a powerful influence on children’s development of early literacy skills (Barnhill & Halquist, 2010; Brown & Byrnes, 2012; Hammer et al., 2010; Johnson et al., 2008; Lenhart & Roskos, 2003; Neuman et al., 2009; Sokal & Piotrowski, 2011). We know that the primary caregiver’s education level, socioeconomic status and background are important factors in children acquiring early literacy skills. Although we know much about the influence of primary caregivers on a child’s literacy development, there has been little research conducted on the powerful influence that siblings have on one another in regard to early literacy skills.

The lack of focus on sibling relationships is surprising in that major theorists (e.g., Piaget, 1965; Sullivan, 1953; Vygotsky, 1978) have written about the developmental significance of child-to-child interactions for decades (Dunn,
Over the past 10 to 15 years, systematic studies of siblings have cropped up in child psychology and child development literature (Howe et al., 2005; Howe & Recchia, 2005, 2009; Kramer & Conger 2009; Recchia et al., 2009). However, there is very little literature available on the sibling relationship in the field of early literacy (Barnhill & Halquist, 2010; Colorado, 2006; Lenhart, 2000; Lenhart & Roskos, 2003; Sokal & Piotrowski, 2011).

From the general body of research on learning, all an extension of Vygotsky’s initial theory, a sociocultural approach to literacy emerged. Researchers have demonstrated that literacy is a complex social practice and does not come just occur at school but in other environments where someone more proficient is present (Gee, 1990; Lankshear, 1994; Willinsky, 1994). Social learning theory suggests that learning, including literacy learning, is a social practice rather than an individual skill that occur in isolation, but in learning contexts where students take an active role and are scaffolded within their zone of proximal development by someone more experienced.

Current theoretical frameworks of early literacy generally focus on the importance of the role of parental involvement in these developments. This literature is limited regarding the role of sibling’s impact on literacy development. This topic is under-researched, especially when there is a clear line of study that demonstrates siblings do impact one another’s literacy development. Despite these handfuls of studies conducted in the area of siblings and literacy there is much we don’t know. So far a number of the studies have been conducted by the parent-as-researcher (Baghban, 1984; Barnhill & Halquist, 2010; Bissex, 1980; Cook, 2005; Lenhart, 2000). Others, like Sokal and Piotrowski (2011), have researched the sibling interactions of other children,
but these studies are rare; especially those that seek out the parent’s observations. Even more rare are requests for parent observations of siblings and literacy in the home environment. Amidst this growing body of research, questions still remain. This particular study is significant because it asks a sample of parents, often the most astute observers of their children, to report observations of their children’s interactions regarding literacy events in the home setting.

A descriptive research methodology was used to investigate parents’ observations of their children helping one another procure important early literacy skills. The target population for this study was parents of two or more preschool children. Non-probability, purposive sampling was used where the population is selected based on the judgment of the researcher. The data collection instrument used was a survey, and the survey instrument was created for this study based on the study’s focus, which is to investigate parent observations of their children’s literacy interactions.

This study found that parents reported a significant impact on emergent literacy on the younger sibling through observing, interacting, and being guided by an older sibling, regardless socioeconomic status. The home environment, arguably reported by parents as more enriching and involved due to self-inflation, contributes to this impact as well. When objectively examined, however, parents are more likely to report statistically significant impact of scaffolding, sibling interactions, and patterns of behavior on younger siblings. These results of this study confirm the hypothesis that siblings play a positive, productive role in encouraging and guiding the emergent literacy of a younger sibling.
Discussion

The influence of older siblings on the emergent literacy of younger siblings is obvious from this study. Statistically significance was found across all areas of the study, particularly in the areas of scaffolding, interaction, and patterns of behavior. The importance of this cannot be underestimated: older siblings provide a key component in the development in attitudes and progress through the process of acquiring literacy skills in their younger siblings. While wider research needs to be conducted to strengthen these claims, the results of this study are important and compelling, and allow us as educators, lawmakers and care-givers to increase our investment into the processes enabling parents to provide both opportunities for and support of these sibling interactions and improving the richness of the home environment.

The specific guiding research questions that were tested for the purpose of this study were as follows:

Guiding research question 1. What scaffolding activities do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

Guiding research question 2. What sibling interactions do parents report when older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

Guiding research question 3. What patterns of behavior do parents report when the older sibling(s) support younger sibling(s) in the acquisition of early literacy skills?

Guiding research question 4. What home environments do parents report that promote early literacy interactions?
Guiding Question #1

Statistical analysis shows that, when examining the scaffolding construct, the most statistically significant activity coalesced around the older sibling reading to and writing with the younger sibling and acting as teacher (mean response 3.64). This tells us that the parents surveyed reported that the older sibling acted as the more experienced other. This confirms what earlier researchers found. For example, Vygotsky’s (1962) and Bandura’s (1977) theories of social learning suggested that children learn in social situations by working with a more experienced other. Bandura (1977), who suggested that individuals form ideas from the observation of others, proposed that an effective model must attract attention in order for imitation to occur. In the earlier research on siblings and literacy, Lenhart (2000) and Colorado (2006) found that siblings naturally scaffold one another and can, therefore, assist caregivers in the encouragement and support of early writing skills in the home. Importantly, the survey item mean drops off when parents report on older siblings simplifying both reading and writing tasks for younger siblings (mean response 2.3), possibly indicating that the older sibling is less incapable of the complex task of differentiating instruction for his/her younger sibling. However, at a 2.3 mean, we can assume that this simplification provided by the older sibling is, indeed, sometimes occurring. This supports the earlier work of Lenhart (2000), who found that the older sibling did break down complex literacy tasks into manageable tasks. It should be noted that Lenhart (2000) conducted a qualitative case study using her own children as her participants. Lenhart (2000) was a teacher and researcher likely modeling assistance with complex literacy activities to both of her children. The older sibling breaking down complex tasks for the younger sibling was a
major finding in Lenhart’s study. Note that in this study, it is the least frequently observed construct item, but it is still occurring. In this study, 10.9% of the parents surveyed had no high and school diploma, 7.8% of the parents had a high school education or GED, and 10.9% had a doctoral degree.

Overall, surveyed parents report that older siblings most frequently act as a teacher to their younger siblings, but least frequently simplify literacy tasks. All other survey items measuring sibling scaffolding fall in between the two with a total construct mean of 2.8.

**Guiding Question #2**

Statistically, these results, as reported by the parents, highlight and support the importance of the role of sibling interactions in early literacy, especially where activities are done together. The frequency of construct survey items increase when the time is focused on the younger sibling(s) desire to be with her/his older sibling(s). This study supported Vygotsky’s (1962) view of these types of interactions among siblings as the social foundation that would lead to learning and development in a uniquely human way; he regards children as active participants in interactions and it is here they construct knowledge, skills, and attitudes.

Statistical analysis shows that, when examining the sibling interaction construct, the most frequently reported activity coalesced around the younger sibling wanting to participate when older the sibling(s) is reading or writing (mean response 4.32). It is common knowledge that younger siblings often want to do anything and everything with his/her older sibling, and so it is no surprise that literacy activities are no exception. Vygotsky’s social constructivist theory is the idea that children learn as the result of
interactions between the child and their social environment. Siblings are a significant part of a preschool child’s social environment. Almay (1949) conducted an early study and found that children could be literate prior to formal instruction. Almay’s findings also support Vygotsky’s theory of social construction; learning takes place with more capable others and social interaction.

Frequency of construct survey items drop off when parents report on siblings seeing books, print and writing as fun to do together (mean response 3.68), possibly indicating that the siblings have other activities in the home that they prefer over reading/writing together. Sokal and Piotrowski (2011) surveyed parents, asking if the siblings at home had engaged in a number of activities in the home over the past 24 hours. Reading together was the most frequently reported sibling-based activity second only to watching television. In the year 2016, while television certainly remains a distraction, there are multiple screen options that could also prove to be a distraction.

In total, the sibling interaction construct (mean 3.6) is an average, but solid, descriptor of this study and its guiding research questions.

**Guiding Question #3**

Again, when patterns of behavior among siblings are analyzed, the younger sibling seems to want to rise to the challenge of emulating the older sibling, with the most frequently reported responses occurring when the siblings work simultaneously together, either reading or writing (mean 3.61). This finding makes perfect sense because younger siblings look to their older siblings to make sense of the world around them including literacy tasks. This finding supports the aforementioned social learning theory of Bandura (1977) in that an effective learning model must attract the attention of
the learner. Their model must have attractive qualities (e.g., power, mastery, etc.), frequency of contact and must be similar to the self. Siblings clearly meet these criteria and this study confirms Bandura’s theory of social learning.

The frequency of patterns of behavior drops off when the younger sibling interacts with the text and the older sibling during reading/writing activities (mean 2.66). It is interesting to note that younger siblings appear to be more likely to take a passive role (e.g., emulate, imitate, etc.) in literacy interactions with his/her older counterpart.

Overall, the total patterns of behavior construct mean (3.0) indicate that these activities tend to impact the efforts towards early literacy.

Guiding Question #4

This study examined the impact of the home environment on literacy. Within the last two decades a body of research has emerged on the Home Literacy Environment (HLE) and the important role it plays in early literacy development (Frijters, Barron, & Brunello, 2000; Molfese, Modglin, & Molfese, 2003, Roberts, Jurgens, & Burchinal, 2005). Researchers in this area of study have looked at the physical environment such as a print rich environment with many opportunities for drawing, writing and interacting with age appropriate literature, as well as interactions among family members (Roberts, Jergens, & Burchinal, 2005).

In this study statistical analysis shows that, when examining the home environment construct, the most frequently reported activities coalesced around reading being viewed as fun at home (mean response 4.89). Referring again to Sokal and Piotrowski’s (2011) study, when parents were surveyed regarding the activities their children had engaged in over the past 24 hours, reading together was the most frequently
reported sibling-based activity second only to watching television. This study supports Sokal and Piotrowski’s findings in that reading being viewed as a fun thing to do in the home environment would naturally lead to it being a top choice for siblings to do in the home.

In this study frequency drops off when parents report about parents and children going to the library together (mean response 3.4), possibly indicating a lack of regular commitment to library visits. However, with a mean response of 3.4, parents report that they do visit the library. Durkin’s seminal research (1966) reported that children who were early readers were read to and taken to the library frequently.

Of note: This is a self-reporting study with the parents as the self-reporters. When asked personal questions about the home environment, it would appear from the skewed responses for this construct that, as was alluded to in Chapter III, parents exaggerated the impact, the involvement, and the intensity of the home environment when contrasted with the three other constructs. While this is not an offense to the nature or outcome of the study overall, it could be an area for further research going forward.

Conclusions

In recent years, scholars from a number of traditions have converged on a sociocultural approach to studying literacy. Sociocultural learning theory explains how cognitive functioning is related to cultural, institutional, and historical context. This study is situated within the sociocultural learning theory because the act of reading does not occur in isolation, but rather as a result of higher-level functions through social interactions (Tharp & Gallimore, 1988).
From this body of general research, all an extension of Vygotsky’s initial theory, a sociocultural approach to literacy emerged. Researchers have demonstrated that literacy is a complex social practice and does not just occur at school but in other environments where someone more proficient is present (Gee, 1990; Lankshear, 1994; Willinsky, 1994). Strickland and Morrow (1989) stated it best: “Literacy is not regarded as simply a cognitive skill to be learned, but as a complex sociopsycholinguistic activity” (p. 3). In summary, sociocultural theory suggests that learning, including literacy learning, is a social practice rather than an individual skill that occur in isolation, but in learning contexts where students take an active role and are scaffolded within their zone of proximal development by someone more experienced.

Moving the conversation from a general idea of this social interaction is crucial to our ongoing development as educators, lawmakers, and caregivers, both professional and familial. Studying emergent literacy, as it is influenced by siblings, is the next logical step since the family construct is the first and primary and ongoing influencer in a child’s life.

The major findings in the statistical analyses of this study indicated that sibling involvement is important and crucial in the development of early childhood literacy. Over the past 10 to 15 years, systematic studies of siblings have cropped up in child psychology and child development literature (Howe & Recchia, 2005, 2009; Kramer & Conger 2009; Recchia et al., 2009). With very little literature available on the sibling relationship in the field of early literacy (Barnhill & Halquist, 2010; Colorado, 2006; Lenhart, 2000; Lenhart & Roskos, 2002; Sokal & Piotrowski, 2011), it begs the question that this study tried to answer: what is the breadth and depth of influence of a sibling on
emergent literacy? In particular, how do the constructs of scaffolding, patterns of behavior, home environment, and sibling interactions in particular influence this emergent literacy? What we found was what we hypothesized, based on the results from Gregory (2001) and Barnhill and Hapquist (2010): a strong correlation between sibling interaction and emergent literacy. With the older sibling as teacher, younger siblings were more comfortable and confident in their own capabilities and therefore worked more easily through the processes necessary to achieve literacy.

Additional findings of this “rising and response to challenge” from an older sibling who mentors a younger sibling through the process of literacy, which strongly supports the concept of scaffolding (Vygotsky) and Bandura’s social learning theory. Siblings share many things that influence their development such as genetics and environment (Bandura, 1977). In general, most social learning theories suggest that in addition to learning through their own behaviors and actions, individuals form ideas and learn new behaviors through the observation of others (Whiteman et al., 2009).

Therefore, the younger sibling is not alone in gaining satisfaction from interaction with an older sibling. The older sibling acting as teacher grounds his knowledge in literacy, practicing his own skills and solidifying his capabilities as a reader.

**Limitations**

While this study was thorough in its development, it was limited in its results by both the natural response rates and the lack of diversity in responses from varying socioeconomic and education levels (which tended to see greater responses in the lower levels as compared to the upper levels). Certainly any and all data would be improved by the expansion of these sample sets, lending credence and depth to the viability and
robustness of the data. Simply put, this targeted and specific area of emerging literacy needs more study. Its significance in supporting our understanding of how to better serve our youth at the beginning of their academic adventure is undeniable.

The survey instrument in this study was researcher created. In hindsight, the researcher would have used multiple survey items regarding the same sub-constructs in order to be able to look at the consistency of parent responses to similar questions. The researcher-created survey would need to be revised and used for multiple studies in order to substantiate the survey appropriately.

Yu and Cooper (1983) discussed the nonresponse bias in sampling. The efficiency of sampling does not guarantee its accuracy. Nonresponse bias occurs when a researcher cannot obtain information from a large percentage of participants in a survey. The missing numbers of surveys affect conclusions about the variables. In the current study, there was a 48% response rate. According to Nultty (2008), a 50% response rate is acceptable. When all study participants in the current study were taken as a whole, the response rate is appropriate and results can be considered.

Because of the disproportionate response rates between the participating preschool sites, it was impossible to break information down into examining each preschool group. Fowler (2009) stated, “Unequal rates of selection are designed to increase the precision of estimates for oversampled subgroups, thus they generally will produce sampling errors for the whole sample that are higher than those associated with simple random samples of the same size for variables that differ by stratum” (p. 42). According to Fowler’s sample size suggestions, the acceptable sample size, in order to gain more accurate results is 200 (with .80 power for type 2 error and 10/90 sample
response). If the researcher were to recreate this study, she would increase the sample size and ensure that each group had a minimum 50% response rate so that results among and between group members could be teased out.

In addition to response rates, numbers of participants were also disproportionate between the four preschool sites. Therefore, adding additional issues with breaking down the groups and examining them separately.

The number of participants in the study that completed a survey was 64 participants. The higher the number of participants, the lower the margin of error in statistical analyses. Holebrook et al. (2005) stated, “A larger sample size gives you greater power and the ability to conduct more complex statistical tests” (p. 13).

Clearly the results of the study would be vastly improved with a larger sample size and a more evenly distributed response rate between the preschool sites. As stated previously, the larger the sample size, the more reliable the results are of the research. With a sample size of 62, insight can be gained into the guiding research questions, but replication with a larger sample size would be recommended in order to further substantiate results.

The parent sample in this study was taken from the Midwestern region of the United States. Although suburban, rural and urban preschools participated, it would improve the results of the study if the sample could have been taken from a wider demographic.

**Implications**

The dynamics of a child’s social, emotional, and cognitive development are varied and crucial. The research on siblings clearly shows they influence one another in
multiple ways. The review to this point demonstrates the intense connection siblings have and how it impacts their social, emotional and cognitive development. Through further research, this lens can be narrowed on the sibling relationship and how they serve as teachers and learners in the area of literacy. Additionally, since siblings often work naturally within the zone of proximal development for one another as well as influence each other’s learning and cultural beliefs, they should be included specifically in the list of teachers, as well as considering themselves the life-long learners they are to become. The gift of learning – the how to learn, not the what to learn – cannot be overstated or underestimated. It begins in the home – and often through the interaction between older and younger siblings.

There are several implications of, and practical applications to, the findings of the study. The following section discusses the theoretical and practical applications this research engendered.

**Parents**

By utilizing the following suggestions, parents can promote and further the natural tendencies of their children. Fostering sibling scaffolding encourages children to interact with one another surrounding activities that promote emergent literacy, e.g. rhyming, conventions of print, scribbling, etc. Parents can foster scaffolding activities among their children by encouraging younger children to seek help from their older siblings regarding literacy activities. Also, parents can help by modeling support and encouragement to all of their children when it comes to literacy events in the home. Literacy activities should include all members of the family in different groups and at
different times. Whole family literacy activities can be a great venue for showing siblings how to engage one another in literacy support.

Parents can make their home environment conducive to sibling engagement using tools of emergent literacy, e.g., pencils, crayons, books and other types of reading materials, markers, scissors, etc. It would behoove parents to put these tools on both the physical and eye levels of their children, make reading nooks, etc.

Parents should encourage their children to interact with one another, passing the baton of teacher and student between each other; one being the more experienced than the other, while the other plays the role of the learner. Parents should not necessarily assume that the older child doing the “teaching.” Parents can make regular trips to the local library and read to and with their children at bedtime.

**Early Childhood Educators**

Given the significance of this study’s findings, the ability for siblings to rise among the ranks as teachers should not also exclude the abilities of caregivers and early childhood educators to recognize their influence in proactive, productive literacy learning. Because the findings of this study support earlier research that siblings do, indeed, scaffold one another in early literacy activities, early childhood educators should encourage peer-to-peer tutoring among classmates to try to emulate the scaffold-like relationships that both siblings and peers possess. Bandura’s (1977) social learning theory underscores the fact that children do not learn in a vacuum, rather through social engagement with more experienced others. Early childhood educators need to recognize the social nature of learning and promote it in their classrooms by modeling scaffolding for their students.
Durkin’s seminal research (1966) reported that children who were early readers were read to and taken to the library frequently. Early childhood educators should regularly send home information on goings on at the local library, e.g., author visits, chorus concerts, etc., in order to encourage families to go and enjoy these activities with one another. Educate parents on how to create home learning environments and provide the tools for home learning as well. The results of this study support earlier theorists’ (Bandura, 1977; Vygotsky, 1942) idea that learning is social in nature; early childhood educators should attempt to create a village of teachers and learners.

**Policy Makers**

As policy makers, both within the structure of academia and in the wider legal arena, we are compelled by the evidence in this study to both research further and then act on that research to create pathways to excellence in our learning environments, whether established in a (pre)school setting or in the home. Ignoring the demographic variances are trite and take the easy way out of creating opportunities to enrich every child’s life as they become learners.

Because policy makers are in a unique position to provide top-down standards that drive education, it is important that, when constructing these standards, they promote social learning and peer-to-peer tutoring. Policy makers can work to close the gap between low-income, minority students and their middle-to-high-income, Caucasian counterparts. Policy makers can also be aware that healthy home environments create opportunities for children to be better prepared learners, who then become healthy citizens in a global classroom. Policy makers can provide better education and training for preschool program providers and administrators and end the view of public education
as “appropriate” and transform it into the optimal learning experience it can be. Policy makers can connect institutes of higher learning with preschool programs and the community at large to support parents setting up positive home learning environments.

**Recommendations for Future Research**

Each of the four constructs investigated could be deconstructed and examined closely in both quantitative and/or qualitative ways. There needs to be more qualitative examinations of siblings (Colorado, 2010; Lenhart, 1999) via longitudinal case studies connecting quality to quantity. It would be beneficial for future researchers to examine how socioeconomic status affects sibling interactions and emergent literacy, to look at demographic factors separately—like parent level of education, native cultural impact, and the cost of creating home environments conducive to emergent literacy.

It is interesting to note that this study found that, when looking at the construct of sibling patterns of behavior, most frequently reported responses occurred when the siblings work simultaneously together, either reading or writing. It would be interesting to use some of the tenets of Bandura’s (1977) social learning theory to delve deeper into the topic of sibling patterns of behavior. Bandura reported that an effective learning model must attract the attention of the learner by possessing attractive qualities (e.g., power, mastery, etc.), have frequency of contact and must be similar to the self. It would be interesting to study if an older sibling is a more attractive model according to younger siblings than a non-sibling, same age, counterpart.

Sokal and Piotrowski (2011) surveyed parents and found that reading was the most frequently reported sibling-based activity second only to watching television. Studies examining screen time on electronic devices in regard to time lost among
siblings participating in literacy activities would also be interesting. As the rise in electronic devices other than television appear to be pervasive among young children, it would be interesting to examine if reading together has lost its second place status among siblings.

If the ANOVA chart is revisited in Chapter IV, it would be hopeful to think there are no difference as the chart delineates. This suggests, no matter what socioeconomic status of a family, the siblings interact in similar ways in regard to emergent literacy. Further research with a larger, more even sample is warranted to determine if this finding is accurate.

Amid this growing body of research, questions still remain, with Gregory and Williams (2001) suggesting more research into this “synergy.” For example, we know that older siblings scaffold the younger sibling, but what is the nature of that scaffolding? Do they explain how print works, or simply help them with a task? Further, what behaviors do the siblings exhibit? Is one more passive than the other? Do they encourage one another? Finally, how does the parent see the home environment they have prepared for their children? Is the parent cognizant of what impacts and encourages literacy in the home? These are they types of details yet to be documented.

**Summary**

Potentially the longest relationships that an individual will have with any family member, sibling relationships offer countless opportunities for affecting each other lives. Clearly, the sibling relationship provides a rich venue to illuminate our understanding of the processes involved in creating shared meanings, scaffolding, children’s social
understanding, and early literacy development. We would do well to not only study its impact, but to celebrate and encourage its power.

When parents were surveyed for the purposes of this study, the findings were very much in line with the prior research in the field with very few exceptions. When parents were asked to report about their children scaffolding one another in regard to early literacy, they reported (from most commonly seen to least commonly seen): (1) when siblings read/write together, the older sibling(s) act as teacher(s) (mean response 3.64); (2) older siblings read to younger siblings (mean response 3.02); (3) older siblings support younger siblings’ attempts at writing (mean response 2.90); (4) older siblings support younger siblings attempts at writing (mean response 2.72); (5) older siblings explain how print works to the younger siblings (mean response 2.56); (6) older siblings simplify reading tasks for younger siblings (mean response 2.34); (7) older siblings simplify writing tasks for younger siblings (mean response 2.28).

In regard to the sibling interaction construct, parents reported (from most commonly seen to least commonly seen): (1) younger sibling wants to participate when older sibling(s) is reading or writing (mean response 4.32); (2) siblings benefit from reading/writing together (mean response 4.15); (3) siblings play/work together with books and printed materials (mean response 3.97); (4) siblings play/work together with writing utensils (mean response 3.77); (5) siblings see books, print and writing as fun to do together (mean response 3.68).

In regard to the sibling patterns of behavior construct, parents reported (from most commonly seen to least commonly seen): (1) siblings read and write together (mean response 3.61); (2) younger siblings are passive during reading with older siblings
(mean response 3.23); (3) older siblings invite younger siblings to read/write (mean response 3.17); (4) older siblings are excited by younger siblings attempts to read/write (mean response 3.13); (5) older siblings recognize and encourage younger siblings efforts to read/write (mean response 3.10); (6) older siblings read to younger siblings (mean response 3.00); (7) younger siblings interact with the text and their older sibling(s) during reading/writing events together (mean response 2.66).

When parents were asked to report about their home environment in regard to early literacy, they reported (from most commonly seen to least commonly seen): (1) reading is viewed as fun at home (mean response 4.89); (2) many books are in the home (mean response 4.69); (3) writing materials are accessible in the home (mean response 4.55); (4) children see parents) reading and writing at home (mean response 4.38); (5) reading is done before bedtime in the home (mean response 4.23); (6) print is displayed in the home (mean response 4.23); (7) parent(s) encourage children to read to one another (mean response 3.58); (8) children are encouraged to write (e.g., thank you notes, grocery lists, etc.) (mean response 3.48); (9) parent(s) and children go to the library together (mean response 3.4).

Evidentiary, extraordinary power lies in these sibling relationships. The role of sibling’s impact on literacy development is under researched, however, especially when there is a clear line of study that demonstrates siblings do impact one another’s literacy development. Despite the handful of studies conducted in the area of siblings and literacy there is much we don’t know. So far a number of the studies have been conducted by the parent-as-researcher (Baghban, 1984; Barnhill & Halquist, 2010; Bissex, 1980; Cook, 2005; Lenhart, 2000). Others, like Sokal and Piotrowski (2011),
have researched the sibling interactions of other children, but these studies are rare; especially those that seek out the parent’s observations. Even more rare are requests for parent observations of siblings and literacy in the home environment.

While the task often seems daunting, as educators and caregivers we are the frontlines in the battle for any child’s future. As a child engages with his world around him, he learns through the social, emotional, and cognitive constructs we establish for him. It is in our best interests to acknowledge and celebrate the importance and longevity of his influencers, of which his older sibling is key on that list. Further, the assumed burden of being the older sibling can be celebrated with the encouragement of further research as to the positive effects on his end of being the teacher – indeed an influencer – to a younger sibling. Our ability as a society to “be our brother’s keeper” cannot be underestimated or forgotten, in deed or in word, whether spoken or written.
REFERENCES


Lenthart, L. A., & Kent State University. (2000). *Do you want me to read to you? A case study of sibling interactions during literacy events*


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APPENDICES
APPENDIX A

PARENT SURVEY

Checkmark your age range:

___ 12-17
___ 18-24
___ 25-34
___ 35-44
___ 45-54
___ 55-64
___ 65-74
___ Over 75

Checkmark your gender:

___ Female
___ Male

Checkmark your ethnicity:

___ White/Caucasian
___ Hispanic or Latino
___ Black/African American
___ Native American
___ Asian/Pacific Islander
___ Other

Employment Status:

___ Employed for wages
___ Self-employed
___ Out of work and currently looking
___ Out of work but not currently looking
___ Unable to work
___ Homemaker
___ Student
___ Military
___ Retired

Marital Status:

___ Single, never married
___ Married or domestic partnership
___ Widowed
___ Divorced
___ Separated

Checkmark your highest level of education (if currently enrolled, highest degree earned):

___ No schooling completed
___ Associate degree
___ Preschool-8th Grade
___ Master's degree
___ Bachelor's degree
___ Professional
___ Some high school, no diploma
___ Doctorate degree
___ High school graduate, diploma or GED degree
___ Some college credit, no degree
___ Trade/technical/vocational training
Number of children, their ages and gender:

Child #1—Age:_____________ Gender: _____Female  _____Male

Child #2—Age:_____________ Gender: _____Female  _____Male

Child #3—Age:_____________ Gender: _____Female  _____Male

Child #4—Age:_____________ Gender: _____Female  _____Male

Additional children:

Checkmark preschool your child(ren) attends:

_____ Head Start
_____ Goddard
_____ University of Akron Center for Child Development
**Table:**

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Frequently</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>We have many books in our home.</td>
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<td></td>
<td></td>
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<tr>
<td>Print is displayed in our home (lists, notes, signs, etc.).</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The older child reads to younger child(ren).</td>
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<tr>
<td>The older child invites the younger child to read/write.</td>
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<tr>
<td>The older child acts as “teacher” to the younger child(ren) around reading/writing tasks.</td>
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<tr>
<td>My children read/write together.</td>
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<tr>
<td>I encourage my children to read to one another.</td>
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</tr>
<tr>
<td>The older and younger child(ren) see books, print and writing as something fun to do together.</td>
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<tr>
<td>The older child notices the younger child(ren) attempting to write and helps him/her.</td>
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<tr>
<td>When the older child(ren) is reading or writing, the younger child(ren) wants to interact.</td>
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<td></td>
</tr>
<tr>
<td>The younger child is passive during reading with the older.</td>
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<td></td>
</tr>
<tr>
<td>My children see me reading and writing.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>When my children read/write together, the oldest sibling acts as the teacher.</td>
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<tr>
<td>The older child gets excited about the younger child(ren)'s attempts at reading/writing.</td>
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</tr>
<tr>
<td>When my children read/write together, ONLY the younger child(ren) benefits.</td>
<td></td>
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<tr>
<td>When the younger child &quot;reads&quot; the older child recognizes his efforts and encourages him.</td>
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<tr>
<td>I encourage my children to write thank you notes, grocery lists, signs and other types of writing. The older child breaks writing tasks into chunks for the younger child(ren).</td>
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<tr>
<td>My children and I go to the library.</td>
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</tr>
</tbody>
</table>

**Notes:**

- The table is a representation of activities related to reading, writing, and the encouragement of children. Each cell corresponds to how often these activities occur, ranging from "Never" to "Always."
<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Frequently</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>The younger child(ren) asks the older child for help when trying to read/write.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Reading is viewed as a fun thing to do in our home. The older child reads to the younger child(ren).</td>
<td></td>
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<tr>
<td>When my children read/write together, they both benefit.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>The older child supports the younger child(ren)'s attempts at writing. Reading is done before bedtime.</td>
<td></td>
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</tr>
<tr>
<td>The older child breaks reading tasks into chunks for the younger child(ren).</td>
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<td></td>
</tr>
</tbody>
</table>
APPENDIX B

IRB APPROVAL FORM

Office of Research Administration

Date: December 17, 2015
To: M. Kate Mardoch,
Curriculum & Instructional Studies

From: Sharon McWhorter, IRB Administrator
IRB Number: 20151214

Title: Sibling Impact on Early Literacy Development as Observed by Parents

Approval Date: December 17, 2015

Thank you for submitting your IRB Application for review. Your protocol represents minimal risk to subjects and
matches the following federal category for exemption:

☐ Exemption 1 – Research conducted in established or commonly accepted educational settings, involving
normal educational practices.

☒ Exemption 2 – Research involving the use of educational tests, survey procedures, interview procedures,
or observation of public behavior.

☐ Exemption 3 – Research involving the use of educational tests, survey procedures, interview procedures, or
observation of public behavior not exempt under category 2, but subjects are elected or appointed public
officials or candidates for public office.

☐ Exemption 4 – Research involving the collection or study of existing data, documents, records,
pathological specimens, or diagnostic specimens.

☐ Exemption 5 – Research and demonstration projects conducted by or subject to the approval of department
or agency heads, and which are designed to study, evaluate, or otherwise examine public programs or
benefits.

☐ Exemption 6 – Taste and food quality evaluation and consumer acceptance studies.

Annual continuation applications are not required for exempt projects. If you make changes to the study’s design or
procedures that increase the risk to subjects or include activities that do not fall within the approved exemption
categories, please contact the IRB to discuss whether or not a new application must be submitted. Any such changes
or modifications must be reviewed and approved by the IRB prior to implementation.

Please retain this letter for your files. This office will hold your exemption application for a period of three years
from the approval date. If you wish to continue this protocol beyond this period, you will need to submit another
Exemption Request. If the research is being conducted for a master’s thesis or doctoral dissertation, the student must
file a copy of this letter with the thesis or dissertation.

☒ Approved consent forms enclosed

Ohio State University
Unifying the Arts & Humanities with Science & Technology

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APENDIX C

PARENT CONSENT FORM

Letter of Consent

December 4, 2015

Dear Parents:

I am from the Department of Curricular & Instructional Studies in the College of Education at The University of Akron. I would like to include you in a research project on the impact of siblings on early literacy development as observed by parents.

Your participation in this project is completely voluntary. It will involve participating in a survey that will take approximately 7-10 minutes of your time. The information obtained during this research project will be kept strictly confidential. Any sharing or publication of the research results will not identify any of the participants by name.

If you have any questions about this project, please contact me using the information below.

Sincerely,
M. Kate Murdoch, M.Ed.
Ph.D. Candidate
The University of Akron
Mkm22@uakron.edu
330-310-2899

I give my permission to participate in the research project described above.

(Print) Name ______________________________________ Date

Signature

APPROVED

IRB / 

Date ____________________________

The University of Akron