Home and Preschool Literacy Environments of Children from Low-Income, Linguistically Diverse Families: Relations with Early Literacy Outcomes

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DEDICATION

This is dedicated to my parents, John and Elaine Hutchison, for never doubting my ability to succeed in everything I do. Thank you.

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ABSTRACT

HOME AND PRESCHOOL LITERACY ENVIRONMENTS OF CHILDREN FROM LOW-INCOME, LINGUISTICALLY DIVERSE FAMILIES: RELATIONS WITH EARLY LITERACY OUTCOMES

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The current study examined relationships between the home literacy environment (HLE), classroom literacy environment (CLE), and emergent literacy skills for young children from low socioeconomic, linguistically diverse backgrounds (N = 1043). Parents and teachers completed surveys, and specialists administered language assessments to children. Language groups included “English, “Spanish,” “English and Spanish,” and “English and Other.” Results indicated that, within the HLE, reading frequency was lower for the “English and Other” group, however recitation of poems was higher for this group. Availability of literacy materials and reading frequency were positively related to children’s book knowledge. This pattern held for children 3 years and older, but not for those under 3. For those 3 years and up, reading frequency was positively related to auditory comprehension. For those under 3, number of literacy materials was positively related to language skills. For native English-speakers, reading frequency and

expressivecommunication were negatively related, while they were positively related for Spanish speakers. For English and Spanish speakers, number of literacy materials was positively related to auditory comprehension and book knowledge. Within the classroom, whole and small group reading were occurring less often than desired. CLE quality was negatively related to expressive communication, while it was positively related to book knowledge. Cluster analyses revealed that classrooms clustered into two groups, and children 3 years and older in the higher-quality cluster scored higher on language naming, auditory comprehension, expressive communication, book knowledge, and book interest than those in the lower-quality cluster. Though child gender and the HLE accounted for significant variance in early literacy skills, the CLE only had an effect beyond this for expressive communication skills. It also did not moderate the effects of the HLE. Future research should focus on the gap between the HLE and CLE, especially for children from low-income, linguistically diverse families.

Introduction

To thrive in today's society, individuals need to have an elaborate understanding of how to interact with the world via written words. To that end, literacy skills are an important tool for every individual to develop (Hammer, Miccio, & Wagstaff, 2003; Lonigan & Whitehurst, 1998; Weinberger, 1996; Whitehurst & Lonigan, 1998; Wood, 2002). The development of literacy abilities is far-reaching, spreading across the elementary and primary grade school years, and into adulthood. In the formal education setting, literacy skills provide an important foundation for children. Success in other academic areas (i.e. history and science) greatly depends on a child's ability to read well (Cunningham & Stanovich, 1998; Morrison, Smith, & Dow-Ehrensberger, 1995). Indeed, children who experience difficulties with reading are not as motivated to improve their reading abilities, and thereby have fewer experiences with reading (Allington, 1984) and may also come to dislike the act of reading (Oka & Paris, 1986).

Stanovich (1986) described the resulting differentiation between strong and struggling readers as the "Matthew effect," whereby children with reading difficulties continue to fall further behind their non-struggling peers throughout the formal schooling years. In fact, children's reading ability in later school years is strongly correlated with their ability in first grade (Juel, 1988), indicating that struggling readers continue to have difficulty with reading-related tasks, even into adulthood. Therefore, it is crucial for

researchers to understand what factors contribute to a child's success in reading (and thereby success in several other areas of life). To do so, researchers often look to the point in time when reading-related skills are just beginning to develop. This point in time has been characterized in recent literature by the development of "emergent literacy skills" (Lonigan, 2004; Lonigan, Burgess, & Anthony, 2000; Whitehurst & Lonigan, 1998).

Unlike previous views of literacy development, which saw entry into formal schooling as the critical starting point for the acquisition of reading abilities, an emergent literacy perspective views earlier precursors of literacy skills as just as important to later reading, writing, and language achievement (Whitehurst & Lonigan, 1998). Proponents of this perspective recognize that literacy development begins at a very young age, in the home environment with parents and in the preschool classroom with teachers (Leseman & de Jong, 1998; Lonigan & Whitehurst, 1998; Van Steensel, 2006; Whitehurst & Lonigan, 1998; Wood, 2002).

The Emergent Literacy Perspective

The idea of "emergent literacy" implies that the development of literacy skills is a continuous process that begins when a child is very young, as opposed to simply when formal schooling begins in the elementary school years (Lonigan et al., 2000; Whitehurst & Lonigan, 1998). Researchers supporting the concept of emergent literacy do not believe that children are preprogrammed to begin acquiring literacy skills at a specific age. Rather, children begin by building a foundation of literacy abilities, which influences later acquisition of formal reading skills (Whitehurst & Lonigan, 1998). It is a slow

building process involving exchanges between the child and surrounding environment (i.e. home, preschool, etc.), cognitive development, and natural maturational processes, with large individual differences and variations from one child to the next. In addition, as previously mentioned, proponents of the emergent literacy perspective believe that children's literacy-related abilities are developing long before children are exposed to formal instruction (Whitehurst & Lonigan, 1998).

In general, emergent literacy has been defined as "the skills, knowledge, and attitudes that are presumed to be developmental precursors to conventional forms of reading and writing, and the environments that support these developments" (Whitehurst & Lonigan, 1998, pg 849). Several components of emergent literacy have been identified by researchers. However, those that seem to be most clearly linked with later literacy achievement include oral language skills, print motivation/knowledge, phonological awareness/processing, and letter knowledge. The present study will focus primarily on oral language skills and print motivation/knowledge.

Oral Language Skills

Oral language skills include a child's vocabulary and ability to translate written text into something meaningful, as well as a child's ability to both express and understand spoken words (Lonigan, 2004). Prior research has indicated that a child's oral language skills are related to later reading ability and achievement, as well as later achievement with spoken language (Butler, Marsh, Sheppard, & Sheppard, 1985; Lonigan et al., 2000; Share, Jorm, MacLean, & Mathews, 1984) Research has also demonstrated that oral language ability influences other literacy-related skills, such as

phonological sensitivity (Burgess & Lonigan, 1998; Lonigan et al., 2000). Phonological sensitivity refers to the ability to do things such as pick out rhyming words, identify syllables in a word, and put together separate syllables to make a single word. (Lonigan, 2004).

Print Motivation and Print Knowledge

It seems natural to conclude that a child who is interested in print will also be more interested in reading. Indeed, children who display motivation to interact with and understand print from an early age tend to display higher reading achievement in later years (Crain-Thoreson & Dale, 1992; Payne, Whitehurst, & Angell, 1994). Furthermore, a child who displays a desire to understand print is more likely to request to be read to by adults, as well as seek out more opportunities to interact with print in daily settings. In addition, these children are more likely to read more often in later years (e.g. Cunningham & Stanovich, 1998).

It is easy to see that being able to identify early on why some children struggle to read more than others could have important implications for educational practice, social policy, and for researchers devising interventions for those children identified as at-risk for later deficits in literacy abilities. The home environment and preschool environment are two settings which greatly influence the development of emergent literacy skills in young children. There already exists a large body of research examining specific factors in these environments that influence literacy development (Connor, Son, Hindman, & Morrison, 2005; Neuman, 1999; Payne et al., 1994; Raban, 1991; Rush, 1999; Van

Steensel, 2006; Weinberger, 1996; Wood, 2002). I will now turn to a brief overview of the research conducted in these areas.

The Home Literacy Environment

Beginning in 1982, Hart and Risley (1995; Risley & Hart, 2006) set out to discover what really goes on between parents and their children during the routines of everyday family life. What they found surprised them, as well as several other researchers. They found that parents and children have frequent verbal communication with one another, but the amount varies significantly from one family to the next. They also discovered that toddlers' amount of verbal communication will level off once it reaches the level of their parents, and parents' level of verbal behavior is related to socioeconomic status. Their explorations were just one of several attempts to unveil the mysteries of American family life. Since that time, several other researchers have delved into the home life experience of parents and children, including examination of specific features, such as the home literacy environment (HLE).

In the home literacy environment (HLE), children encounter written words in a variety of ways. They observe and participate in literacy activities either on their own or with adults. A growing body of research on the HLE is attempting to identify what aspects of this environment influence later literacy development and outcomes (Burgess, Hecht, & Lonigan, 2002; Edwards, 2007; Payne et al., 1994; Snow, Barnes, Chandler, Goodman, & Hemphill, 1991; Umek, Podlesek, & Fekonja, 2005; Van Steensel, 2006).

Conceptualizing the Home Literacy Environment

Traditionally, researchers have conceptualized the HLE by examining the frequency of shared book reading between parents and children (Burgess et al., 2002). However, this has been considered by some to be too simple and not a full representation of important factors present in the HLE. Therefore, other researchers have argued that the HLE is composed of more complex factors, such as attitudes, resources, activities (including shared book reading), and parental skills and abilities (Burgess et al., 2002).

For instance, Van Steensel (2006) administered a survey to parents of kindergarten children in the Netherlands (mean age of children was 6.4 years and 46.6% were girls) to gather information on literacy activities. He asked questions about various parent activities (i.e. reading books, magazines, or newspapers, writing letters, etc.). He also gathered information on activities involving both parent and child, such as book reading, writing, visits to the library, and singing children's songs. Based on type and amount of various literacy activities that parents and children engaged in both on their own (i.e. writing letters, perusing magazines, reading/looking at books, etc.) and jointly (i.e. going to library, shared reading, storytelling, viewing educational television programs, etc.), Van Steensel identified three types of home literacy environments: a rich environment (parents and children participating in a vast array of the literacy activities, both together and on their own), a child-directed environment (fewer literacy activities, but still some occurrence of high priority activities, such as shared reading, singing, and library visits), and a poor literacy environment (very little participation in literacy activities by either the parent or child). Studies such as Van Steensel's point out that the

HLE is much more complex than the picturesque version of a child seated on a parent's lap, enjoying a storybook together. In addition, operationalizing the HLE often proves to be a difficult task, with objectivity hard to achieve, as there is not complete agreement in the literature regarding the exact components of a "rich environment."

Importance of the Home Literacy Environment

Links have been demonstrated between the HLE of young children and later child outcomes. For instance, in a study by Weinberger (1996), parents of three-year-old preschoolers completed surveys describing various aspects of their home literacy environment, such as availability of reading and writing materials, number of books in the home, whether or not parents read with children, whether or not children appeared to enjoy reading, and whether or not children had a favorite book. Weinberger followed the 42 children into grade school, assessing their various literacy abilities at age five and again at age seven. One of the tests of literacy ability at age seven involved assessing the child's book reading level (the level of difficulty of books children were reading, based on difficulty of the text). Weinberger found that children who identified a favorite book at age three had significantly higher reading levels at age seven than children who did not identify one. Overall, Weinberger's (1996) study demonstrated the importance of a rich home literacy environment (i.e. exposure to libraries, having a favorite book, joint reading with or being read to by parents) for positive developmental outcomes. These findings also reinforce the point made above that children who are motivated and interested in interacting with print (i.e. books) early in life tend to display higher reading achievement in later years.

In another study conducted by Wood (2002), parents were asked to indicate the frequency with which they participated in various literacy activities with their four-year-olds, including reading together, taking part in letter or word games, and singing children's songs (all children were non-readers). Parents responded to a questionnaire aimed at assessing various literacy activities in the home. From this questionnaire, Wood (2002) identified four main types of activities. These included storybook reading, letter-based activities (i.e. drawing/coloring letters), singing activities, and games (i.e. picture dominoes). Children were assessed during year 1 and again in year 2 to determine their progress in various areas of literacy, such as reading, spelling, vocabulary, letter sound knowledge, recall of digits, rhyme detection, and alliteration detection. Results of Wood's (2002) study pointed out the importance of engaging not just in frequent literacy activities, but also in a wide variety of different activities during the preschool years, and its positive impact on literacy development. Those children whose families engaged in a wide variety of activities made the most progress in the literacy areas assessed. Frequency of storybook reading was also related to higher achievement in reading and oral language skills (i.e. vocabulary).

Incorporating Parental Beliefs into the Conceptualization of the HLE

What parents think about exposing their children to literacy and their own role in this process, has also been shown to be related to children's literacy development (Evans, Fox, Cremaso, & McKinnon, 2004: Senechal & LeFevre, 2002; Weigel, Martin, & Bennett, 2006). Therefore, it is important to consider parental beliefs as a crucial part of the HLE.

For instance, with regards to parental beliefs about literacy, Weigel et al. (2006) identified two types of mothers: facilitative and conventional. Facilitative mothers believed that actively teaching children would help them gain the skills necessary (i.e. vocabulary) to become successful readers. Conventional mothers, on the other hand, believed that it was the school's and teacher's responsibility to teach children. Facilitative mothers spent more time (compared to conventional mothers) actively partaking in reading and writing activities with their children. They also spent more time doing other activities that promoted the development of related skills (i.e. oral language skills), such as singing, playing games, and telling stories. In addition, a higher percentage of facilitative mothers reported that they themselves enjoyed reading compared to conventional mothers. Conversely, conventional mothers spent less time engaged in literacy activities with their children. They also expressed the belief that teaching their children to read was difficult. It is noteworthy to point out that there were no differences in income between the two groups of mothers, though facilitative mothers did tend to be more highly educated. Overall, those mothers identified as facilitative had children that demonstrated more developed literacy skills than children of conventional mothers.

In another study, Baker and Scher (2002) also identified different approaches parents can take toward literacy. They identified an entertainment approach, where parents focused on reading as a fun activity. They also identified a skills-oriented approach, where parents believed that literacy was a set of skills that children had to learn. Baker and Scher (2002) found that mothers from middle-income families often used the reading as entertainment approach, whereas mothers from low-income families

focused on the reading as skills to learn approach. Results of Baker and Scher's (2002) study indicated positive relationships between literacy outcomes and the entertainment approach to learning about literacy. Research has also indicated that children from low-income families are at a higher risk for falling behind early on in formal schooling (e.g. Hammer et al., 2003). I will now turn to prior research examining the development of emergent literacy skills in low-income environments.

Children from Low-Income Families

Another important influence on child development is the socioeconomic status of the family. There is an achievement gap in the United States education system, where children raised in poverty are performing significantly below their peers from more advantaged families (Dickinson & Caswell, 2007; Janus & Duku, 2007; McGee, 2004). However, this gap begins long before the children enter into formal schooling (Hart & Risley, 1995). For instance, Hart and Risley (1995) estimated that this population of children has a much smaller vocabulary upon entering kindergarten than children from higher SES (about 5,000 words vs. 20,000 words). In addition, prior research has indicated that children in low-income environments simply have less access on average to literacy resources and activities. This differential access (compared to children from middle or high income environments) contributes to the gap in the long-term literacy development of children from low-income families versus those from middle or upper class (Snow et al., 1991).

In some studies that have focused on lower socioeconomic status, there is suggestion that the home literacy environments of lower SES families can be highly

varied (e.g. Snow et al., 1991). For instance, Rush (1999) examined the home literacy practices for a sample of Head Start children (20 girls and 19 boys with a mean age of 59.3 months). All participants were from lower socioeconomic environments. She found that some of the preschool children had strong vocabulary and early literacy skills, despite the disadvantage of low socioeconomic status. She also found that certain parental behaviors that were linked to the development of early language and literacy skills (such as the use of positive feedback when speaking with children), were occurring in some of the family environments, but at low rates.

Most researchers continue to point out the persistent lower performance of children from low-income households, as well as those from minority ethnic and/or language groups. However, a plethora of prior research has also shown that early intervention can prevent and even reverse this trend (e.g. Bernhard et al., 2006; Madden, Slavin, Karweit, Dolan, & Wasik, 1993; Ryan, 2005; Tizard, Schofield, & Hewison, 1982). Before discussing the effectiveness of early intervention efforts, a discussion of the classroom literacy environment will be presented.

The Classroom Literacy Environment

It is clear that the quality of the classroom environment has an impact on the development of children's literacy skills. There are several ways to examine the "quality of the classroom." Factors such as classroom structure and materials, teacher quality and practices, classroom activities, and teacher-student interactions are all important to consider when examining the classroom environment as a whole (Conner et al., 2005; Darling-Hammond, 2000; Wright, Horn, & Sanders, 1997).

Classroom structure and materials

When outside observers walk into a preschool classroom, certain expectations have already been formed in those individuals' minds about what they should see. Hopefully, they will see what they expected to – that the room is divided up into several smaller sections, each with its own specific goals for developing children to their full potential. For instance, there will most likely be a kitchen area and block area in different corners of the room. Such areas are important for the promotion of sociodramatic play, which is also related to literacy development (Campbell, 1998; discussed in more detail below). If the individuals continue to scan the room, they should see an area with a large rug or unique carpeting that is designed for "circle time" activities. It is also important to that the observers are easily able to identify a library corner and a writing center in the classroom (Campbell, 1998). Indeed, researchers recommend that a preschool classroom have clearly defined areas for various types of activities and play. This type of classroom structure promotes active learning and exploration by children, as advocated by Piaget (Elkind, 1976), and includes exploration of and interaction with literacy.

To promote this interaction and exploration, it is important that a diversity of materials be made available to children. Not just books, but other materials such as paper, pens, crayons, and pencils should be available all around the classroom (Campbell, 1998). Indeed, availability of books is related to reading achievement (Neuman, 1999; Raban, 1991). When more books and other literacy-related materials are available, children are more likely to spend time engaging in literacy activities, including independent reading and exploration of books (Neuman, 1999). For instance, in one

international study that examined the relationship between classroom quality and cognitive development, the researchers found that the availability of a larger variety of materials in the classroom during preschool was related to better cognitive skills later on when children were seven years old (Montie, Xiang, & Schweinhart, 2006). These findings were consistent across ten different countries, including Finland, Greece, Hong Kong, Indonesia, Ireland, Italy, Poland, Spain, Thailand, and the United States.

In addition, it is important that the books available are "child friendly." Many children's books are designed in such a way as to scaffold children's reading. These types of books have several characteristics in common, including repetition of phrases (especially ones that rhyme) and questions throughout the book, familiar sequences (numbers, alphabet, etc.), predictable plots, rhyming patterns, and flaps to lift and engage children (Reynolds, 1998). After scanning the room and getting an idea of the classroom layout, observers would likely notice the activities going on in the classroom next.

Classroom activities

Activities that might be occurring at any given time in the preschool classroom vary greatly, and include things that are both teacher-directed and child-directed. With regards to literacy, one of the most important teacher-directed activities is reading in small and whole group settings to children. During these times, the teacher does not just read to the children; rather, the children are active participants. They comment on pictures and the teacher may link this to words, which helps children to see the connection between pictures and words (Campbell, 1998). In this way, children learn that the words are telling the story, which motivates them to want to decipher the words on

their own. Teachers can also ask children questions and have children point out where words are located on the page. This teaches children about the orientation of text, as well as drawing their attention to it. Allowing children the chance to comment on a story during group reading, while the teacher and other children listen, also validates the individual thoughts of the children and their opinions about the book. Children's books also tend to repeat certain phrases over and over, and children will start to mimic these repetitive phrases. Here, children are becoming "readers." (Campbell, 1998). In addition, teachers will often use a story as a focus for the day or week, having children write about it and use themes or characters from that book in their play during the day. Visitors to the classroom are likely to see children's pictorial representations of that week's book displayed on the walls.

Child-directed activities in the classroom also have value for literacy and language development. For instance, as mentioned above, most preschool classrooms have areas for imaginative play, such as a doctor's office or grocery store. These areas allow for endless opportunities to interact with literacy in a make-believe setting. For instance, in the "grocery store," there might be cans and boxes with labels on them, paper available to make grocery lists, signs directing "shoppers" to certain areas of the store, and cash registers for ringing up items. Children then come into the setting and direct their play with the items made available to them, coming up with scenarios relevant to the setting (Campbell, 1998). As children use their imaginations and create scenarios, they are also learning how literacy (in the form of print and words) is used in the everyday world, and extends beyond just book reading sessions.

This provides another opportunity for children to connect symbolic representations (i.e. pictures) to the concrete objects and words they represent. Children are given the opportunity to see that print has meaning beyond telling a story. For instance, a sign pointing in a particular direction with "grocery store" printed on it, along with a picture, teaches children that words give meaning about direction and actions to be taken to achieve certain goals (i.e. getting to the "grocery store") (Campbell, 1998). While sociodramatic play is going on, it is also important that the teacher stops by the "grocery store" to see how things are going and perhaps make a purchase. As children watch the teacher choose an item and ring it up with the cashier, they are learning from a knowledgeable other about how print and literacy are used in everyday life. The children are likely to model this interaction after the teacher moves on (Bandura, 1977).

Teacher quality and teacher-child interactions

A large body of research has indicated that teacher quality and effectiveness are related to student achievement across several academic areas, including reading (e.g. Darling-Hammond, 2000). This relationship remains even when controlling for the socioeconomic status and primary language of the student. Researchers have also argued that, when examining student performance, teacher effectiveness is important above and beyond other factors like number of students in the classroom and basic differences in student ability (Darling-Hammond, 2000; Wright et al., 1997). In addition, prior research has demonstrated that when teachers offer more support to students, both academically and emotionally, children show greater gains across several academic areas (Perry, Donohue, & Weinstein, 2007). For instance, in one study, Connor et al. (2005) found that

first grade teachers who displayed more warmth and responsivity overall when interacting with students, and spent more time on academic activities, had students with greater vocabulary skills at the conclusion of first grade.

Despite the fact that the activities described above should be happening in any given preschool classroom, and despite the enormous impact that positive, high-quality teaching and teacher-child interactions can have for children, all preschool classrooms do not stand as equals. Therefore, several early interventions have been designed and implemented, in both the home and classroom, in an effort to increase the quality of these environments and ultimately create a better young reader and communicator.

The Effectiveness of Early Intervention

The potential gap in literacy resources between low and higher income families, as well as potential differences in how often parents from low-income versus higher income households interact with and encourage their children to engage in literacy-related activities, has prompted the development of several intervention programs in both the home and school environments. These programs have primarily been aimed at changing both parent and child participation in literacy-related behaviors (e.g. Neuman, 1996; Neuman & Roskos, 1993). For instance, Neuman (1996) devised a literacy intervention and implemented it in several Head Start centers. The intervention involved the participants in the study (41 parents and their Head Start children) taking part in a weekly book club. About half of the parents were identified as proficient readers, while the rest of the parents were identified as low proficiency readers. Participation in the book club greatly improved the children's literacy skills, regardless of their parents'

proficiency with reading. With these findings, Neuman (1996) reiterated the importance of shared reading for young children. Furthermore, her study also demonstrated that it is possible to alleviate, through classroom intervention, some of the disadvantages in access to literacy experienced by low-income children.

In another intervention conducted by Neuman and Roskos (1993), Head Start classrooms were assigned to one of three specific intervention conditions. In the first condition, a literacy-enriched play setting was created and adults were instructed to be engaged with children in the play area and help them learn about printed words. In the second condition, there was also a literacy-enriched play setting, but adults were instructed only to monitor the children in the play area. The last condition represented the nonintervention group (with no enriched play area). Results indicated that those children from the first condition (where adults were actively engaged in the play area) performed significantly better at reading print and labeling items than they had prior to the intervention, though this finding did not hold for children in the other two conditions (Neuman & Roskos, 1993). Several other large-scale literacy interventions, such as the Literacy Environment Enrichment Program (LEEP) in Head Start centers, have been carried out with at-risk preschool children and have resulted in improvement in children's literacy skills (Dickinson & Caswell, 2007).

Other literacy interventions, known as Family Literacy Programs, focus mainly on the home environment. Such programs examine functioning within the home and target factors such as parent-child interaction as a means of enhancing the literacy and language

development of the child. Programs such as these generally have positive results for participants (Fuligni & Brooks-Gunn, 2004; Saint-Laurent & Giasson, 2005).

While many interventions have targeted low-income English-speaking children, less is known about the literacy and language development of children who speak English as a second language. Researchers are just beginning to learn more about what goes on in the homes of these children, and how these environments compare to monolingual English home environments. In addition, researchers have been focusing on how these children are affected when in a predominantly English-speaking preschool classroom.

Children for Whom English is a Second Language

The number of children in the United States school system that do not speak English as their first language has been growing rapidly over the past several years (Schwarzer, 2007). This includes children in the preschool classroom setting. If these children are from low-income families and also do not speak English as their first language, they are likely to struggle even more in the U.S. education system, especially with their literacy development (August & Hakuta, 1997; Hammer et al., 2003; McArthur, 1993).

In terms of becoming proficient in English, and thereby more prepared for entrance into kindergarten in the U.S., these children would benefit most from a teacher fluent in both English *and* the children's native/home language. Unfortunately, this type of qualified teacher is hard to come by. Furthermore, the languages represented in the classroom are often very diverse (beyond just English and Spanish), and there might be only one child speaking a particular language in the classroom (Schwarzer, Haywood, &

Lorenzen, 2003). For these reasons, English language learners (ELL) are often working under the instruction of a monolingual classroom teacher. In addition, due to their lack of proficiency in English, these children are often labeled as having a reading disability and/or are placed into some type of special education classroom (Artiles, Rueda, Salazar, & Higareda, 2005; Klingner & Artiles, 2006; Klingner, Artiles, & Barletta, 2006). When a child's native language is not English, that language can be viewed as either a hindrance to the child or as a valuable resource for the child. Unfortunately, many educators tend to see it as the former, though this view has been changing in recent years (Schwarzer, 2007). Indeed having bilingual individuals in U.S. society is of great benefit in the political, economic, and social arena of this century.

Examinations of literacy and language development of ELL's have revealed some interesting findings. For instance, for children whose native language is Spanish, the presence of extended family seems to be important for the development of oral language skills (Gonzalez & Uhing, 2008). In addition, though these children start off behind their native-English speaking peers in terms of phonological awareness and letter naming, they appear to make rapid gains (Hammer & Miccio, 2006), though research has shown that they continue to lag behind their peers at the end of preschool (Eppe, 2007).

It is imperative for parents, policy-makers, educators, and the general public to understand which characteristics of the preschool and home literacy environments, for both native and non-native English speakers, support and encourage optimal literacy development. A more comprehensive picture of the literacy environments to which these children are exposed can help educators and researchers generate more effective

interventions that promote literacy development prior to and after entrance into formal schooling. Therefore, a main goal of the present study was to examine the home and classroom literacy environments of both native and non-native English speaking children and relate specific characteristics of these environments to emergent literacy skills. Few research endeavors have considered the influence of both of these literacy environments within one study. The current study undertook this task, creating a more detailed picture of the literacy environments of low SES and linguistically diverse families. This picture incorporated various physical aspects of the home environment of low-income families, literacy activities engaged in by parents and children in these environments, and also parental beliefs about literacy. In addition, teacher practices within the classroom and characteristics of the classroom environment were explored. Relationships between these factors and children's oral language skills and print motivation were examined.

The Present Study

The current study used a sub-sample of data (N = 1043) collected in a prior study (in the Fall of 2003-2004 school year). In the prior study (N = 1491), participants included children receiving subsidies to attend center-based childcare in Miami-Dade County, Florida. The children (and their parents) participated in an intervention program, known as the Early Authors Program (EAP), aimed at engaging children and their parents together in literacy activities (Bernhard, Winsler, Bleiker, Ginieniewicz, & Madigan, 2008). The community of Miami-Dade County is comprised of people from extremely varied ethnicities (over half of the people residing there were not born in the United States). The median income for a household in the county is $29,000 (Proctor & Dalaker,

2003). Furthermore, as would be expected with such a diverse population, English is a second language for more than 60% of the children living in the area (Proctor & Dalaker, 2003). Therefore, most children in the sample were dealing with issues of learning English or, for those who already spoke it as a second language, dealing with potentially different language environments in the home versus school.

Surveys filled out by parents and teachers during the implementation of the EAP provided data on the quality of both the home and classroom literacy environments. The parent survey included questions about various parent-child activities, such as frequency of visits to the public library, availability of books (and other literacy materials) in the home, and times per week reading stories together. Additional survey questions tapped into parental beliefs about literacy. Surveys filled out by teachers assessed factors such as child engagement with books in the classroom and the frequency of various classroom activities, such as how often teachers read to children.

With these data, I examined the following research questions:

Research Question 1: What does the home literacy environment of preschool children from low-income families in Miami-Dade, both native and non-native English speakers, look like? Do parents from these families report engaging their children in a variety of literacy activities? Are there a variety of literacy materials available to these children?

Research Question 2: Is there a relationship between the quality of the home environment and the development of literacy skills (i.e. oral language skills and print motivation) in preschool children from low socioeconomic status? In other words, are characteristics of

the home environment (reading frequency, literacy materials available in the home, parental beliefs about early literacy exposure, trips to the library) correlated with child outcome variables?

It is hypothesized that those children whose parents report reading to them more often will have higher scores on oral language measures when compared to those children whose parents report reading less often. It is also believed that, compared to those read to less often, children read to more often will demonstrate higher levels of print motivation by interacting independently with books more frequently and by exhibiting a greater understanding of books (storyline, characters, setting, etc.). Further, it is believed that children who have more literacy materials available to them in the home will have higher language outcomes compared to children with fewer materials available. Lastly, those parents who indicate agreement with statements regarding the importance of reading to young children will have children with higher scores on the language measures than parents who indicate less agreement with the statements.

Research Question 3: Are the relationships between home environment variables (reading frequency, availability of literacy materials, parental beliefs about early literacy exposure) and literacy outcomes (when child was assessed in their dominant language) different for children from predominantly English speaking versus non-English speaking or dual language homes?

It is unclear as to whether the relationships between home environment variables and literacy outcomes will be different for children from English-speaking versus Spanish-speaking homes.

Research Question 4: What does the classroom literacy environment look like for the children? In other words, how often do teachers attempt to engage their students in literacy-related activities? Are these children exposed to literacy in the classroom in a variety of ways?

It is hypothesized that the quality of the classroom environment will vary for participants, with some having a more enriched environment and others having a less enriched environment.

Research Question 5: Is the quality of the classroom environment correlated with literacy outcomes? Does this relationship differ based on age grouping of the child?

It is hypothesized that those teachers who engage in more literacy promoting activities in the classroom (as indicated by the Instructional Practices survey) will have students with higher scores on measures of oral language skills and print motivation.

Research Question 6: Does the quality of the classroom literacy environment (as measured by one composite score) have an impact on literacy outcome measures above and beyond the home literacy environment (as measured by one composite score)? Does the classroom literacy environment moderate the effects of the home literacy environment on child outcomes?

It is hypothesized that the quality of the classroom literacy environment is related to literacy outcomes above and beyond the home literacy environment. It is also hypothesized that the quality of the classroom literacy environment will moderate the effects of the home literacy environment. It is expected that on average there will be a positive relationship between home literacy environment and literacy outcomes.

However, in the presence of a high quality classroom environment, the expected positive relationship between home environment and literacy outcomes will be stronger than when in the presence of a low quality classroom environment.

Method

Participants

The current study examined data collected in a prior study (Bernhard et al., 2008). In the prior study, participants included low-income children receiving subsidies to attend childcare in Miami-Dade County. As described previously, the children (and their parents) participated in an intervention, known as the Early Authors Program (EAP), aimed at engaging children and their parents together in literacy and book-making activities (Bernhard et al., 2008). The intervention took place during the 2003-2004 school year. Children were assessed at two time points: once in the fall (pre) and again in the spring (post). Bernhard et al. (2008) focused on the effects of the classroom-based intervention on change over time in language gains, but did not analyze the classroom and home literacy environment data that were collected.

The current study included 1,043 target children as participants and examined only the Pre (Fall) time point. Participants were from low-income families and were receiving subsidies to attend childcare. Due to time, monetary, and other constraints, not all children were assessed on all measures in the original study (Bernhard et al., 2008). Therefore, the sample size varies for different sub-samples that will be examined in the analyses (see Table 1 for various N's). Approximately half (56.7%) of the sample were male. The sample included a wide variety of ethnicities, including Hispanic (50.2%),

African-American (37.5%), White (9.9%), Haitian-Creole (1.7%), and Asian (.6%). The average age of the children at the first assessment time point (Pre) was about 39 months (M_{age} = 38.99, SD_{age} = 16.66) and children ranged in age from 1.41 months (newborn) all the way up to 76.45 months (a little over six years old). Due to this wide range in participants' ages, children were split into two age categories for analyses, with children under age three in one group and those over age three in a second group (this process is described in more detail under "*Creation of New Age Variables*" in the *Measures* section). The predominant language that children spoke (according to parent report on the family survey) also varied, including English (38.2%), Spanish (12.1%), both English and Spanish (42.5%), and both English and another language ("Other;" 7.2%). The creation of this variable is discussed below under "*Operationalizing the Dominant Language of Participants*" in the "*Measures"* section. Education level of parents varied: 11.2% did not complete high school, 33.7% earned a high school degree, and 54.8% had some college education. A majority (63.3%) of parents reported that English was a second language for their child. Approximately half of the target children (48.6%) were first-born.

The Childcare Centers

The type of childcare centers that participants attended varied greatly from one program to the next. Most participants attended a child care center (89.4%, N = 927), while some attended a family child care arrangement (10.6%, N = 110). There were 22 different child care centers and 16 different family daycare arrangements involved in the study. Child care programs included both for-profit and non-profit programs, as well as faith-based centers. Some centers were licensed while others were exempt from

licensing. A small portion of all childcare centers in Miami-Dade County at the time were accredited (2%). Most children attended childcare on a full time basis (*M* = 39.6 hours per week, *SD* = 2.4).

Procedure

All child assessments took place at the preschool center that the child attended. Outside literacy specialists and doctoral students came in to administer the assessments one-on-one with the child in a quiet separate room (see *Training of Literacy Specialists and Assessors* below). Each child was given two assessments: the LAP-D and PLS-4 for those over 36 months; the E-LAP and PLS-4 for those under 36 months. All assessments were administered in either English or Spanish (whichever was the child's dominant language, as indicated by the teacher). Each assessment ranged in duration from an hour to an hour and half to complete. For the current study, only assessments administered at the Pre time point will be used. Pre-test assessments began two months prior to the start of the Early Authors Program. Pre-tests lasted for three months. However, due to limited funding and variable child attendance, not all children could be given all assessments at the Pre time point (Bernhard et al., 2008).

The Interaction with Books and the Instructional Practices surveys were filled out by teachers. These surveys were distributed to teachers by literacy specialists and were collected before the Early Authors Program began. Teachers took up to two weeks to complete the surveys. The Interaction with Books Survey was available in English, Spanish, or Haitian-Creole. The Family Survey was filled out by the child's primary caretaker (usually mother) and returned to the child's school.

Training of Literacy Specialists and Assessors

Thirteen literacy specialists provided ongoing support to teachers throughout the EAP intervention. They were trained over a 3-day period prior to the intervention. In addition, doctoral students in education and psychology at a local university in Miami were hired to administer the assessments to the children. They were trained by the EAP lead researchers over a 5 day period to administer the LAP-D and E-LAP. They were also trained by a speech pathologist to administer the PLS-4 (Bernhard et al., 2006).

Measures

Home Literacy Environment

At the beginning of the study, a Family Survey was given to parents to fill out (see Table 2). This survey will serve as the measure of the home literacy environment for the current study. The survey gathered demographic information with items such as "how many years have you lived in the US," "what level of education did you complete," and "what is the language usually spoken in your home." The survey also gathered information about various literacy practices. These included questions such as "how many times a week do you or a family member read stories to your child," "how many times a week do you or a family member tell or recite poems with your children, and "how many times a week do you or a family member take your child to the library." All of these could be answered on a five-point Likert scale with options of "never," "once," "twice," "three times," or "more than three." The survey also provided a list of literacy-related materials (i.e. crayons, paper, books, magazine, flash cards, dictionary, etc.) and parents were instructed to indicate which were available to their children by circling

either “yes” or “no.” To assess beliefs parents might hold about the importance of reading to young children, the survey asked respondents to indicate their level of agreement with the following two statements: “reading to two and three year old children is very useful for them” and “reading to a child who can’t talk yet makes no sense.” Responses were on a four-point Likert scale, including “I agree,” “not sure,” “not really,” and “disagree.”

Composite for Total Materials Available

For some analyses, items on the family survey were used individually. However, for other analyses, various composite scores were desired. To create a composite score for “total literacy materials available,” all items with a “yes” response were given a 1 and all items with a “no” response were given a 0. Then, all 9 items (including pens/markers, crayons, paper for writing, books, coloring books, magazines, flash cards, dictionary, and calendar) were added together, for a final range of 0 to 9 possible for the variable “total literacy materials available.”

Recode of Trips to Library

On the home environment survey, parents were also asked to report how often the parent or a family member took the child to the library. Response choices included once, twice, three times, more than three, or never. Due to extreme skewness in the distribution of this variable, it was recoded into a yes/no dichotomy, where parents who reported taking their child to the library at all were coded with a 1 (N = 182) and those who reported never were coded with a 0 (N = 378).

Reverse code of Parental Beliefs Variable

Parents were asked to respond to two phrases regarding their beliefs about the importance of reading to young children. One phrase stated "reading to two and three year old children is very useful for them." The second phrase stated "reading to a child who can't talk yet makes no sense." Response options included "I agree" (coded 1), "Not sure" (coded 2), "Not really" (coded 3), or "Disagree" (coded 4). The first phrase was reverse coded so that larger numbers would indicate more positive views about reading (i.e. that reading to young children is useful for them). For the second phrase, larger numbers already indicated more positive views about reading.

Recode of Parental Beliefs Variables

After completing the above reverse coding, exploratory data analyses indicated that the distribution for each of the two parental belief variables was very skewed. Therefore, these two variables were both recoded into dichotomous variables. Any code of 4 was turned into a 1, indicating very clear agreement with the importance of reading to young children. Any codes of 1, 2, or 3 were turned into a 0, indicating less clear / unclear views about the importance of reading to young children.

Home Literacy Environment Composite Score

One score describing the home literacy environment was desired. Therefore, a composite score was also created for all the Family Survey variables. Based on prior research, frequency of storybook reading was deemed most important of the Family Survey items and was therefore weighted by multiplying it by 2 (Weinberger, 1996; Wood, 2002). As a result, scores for storybook reading ranged from 0 to 8, scores for

reciting poems ranged from 0 to 4, scores for each parental belief statement ranged from 1 to 4, scores for total literacy materials available ranged from 0 to 9, and scores for take to library ranged from 0 to 4. All of these ranges were added together to create a composite score of the home literacy environment, so the total score could range from 0 to 33. Lastly, a participant's actual score was divided by the total points possible to get a percent of total points possible for the HLE composite score. Participants were not penalized if questions were left blank. For instance, if a parent skipped the question about taking their child to the library, that child's score would be computed out of 29 points possible rather than 33.

Classroom Literacy Environment

At the beginning of the study, classroom teachers and educators filled out a survey titled Early Steps to Reading Success Spring Survey. One portion of this survey, entitled Instructional Practices, was used in the current study as the measure of the classroom literacy environment (see Table 9 for the items on this survey). This portion of the survey gathered information on how often teachers engaged children in various literacy related activities and how often they engaged in specific instructional practices in the classroom. There were 40 items to which teachers responded. Responses for all items were made on a five-point Likert scale, including "not at all," "1-2 times a week," "3-4 times a week," "once a day," and "2+ times a day." These responses were coded with a 1, 2, 3, 4, or 5 (with larger numbers indicating a greater frequency of the target behavior). The survey included items such as "encourage children to write on their own," "point to words as you read to children from a big book or chart," and "set time aside for children

to look at books independently or with a friend." Each teacher responded the same on the CLE survey for all children in his/her classroom (in other words, they filled out the survey for the classroom environment in general, not specific to each child).

A principal components factor analysis was conducted to determine if the items would reduce to any discernible factors. Results of the factor analysis indicated that 42.7% of the variance was explained by the first component (just one factor), with an eigenvalue of 17.09. After this, only 9.1% additional variance was explained by a second factor, with an eigenvalue of 3.66. In addition, the items loaded highly onto the first factor (loadings of .41 and above for all items). Finally, examination of the scree plot indicated that the graph dropped sharply after the first eigenvalue. As there was not more than one discernible factor for the survey, a composite score was created instead. This composite was created by adding up all the scores on all items (with a total of 200 possible) and then dividing a participant's score by the total points possible. Therefore, similar to the HLE composite score, this CLE composite score was a percent of total points possible. Again, participants were not penalized if a teacher skipped a question. So if two of the 40 items were skipped, for instance, the total points possible would be out of 190 rather than 200.

Learning Accomplishment Profile Diagnostic (LAP-D)

The Learning Accomplishment Profile-Diagnostic (LAP-D; Nehring, Nehring, Bruni, & Randolph, 1992) assessment was administered to children 36 months or older. The LAP-D assesses children on a variety of skills in four domains, including fine motor, gross motor, cognitive, and language areas (each has two sub-scales). For the current

study, only the language naming and language comprehension subscales were used. LAP-D assessments were administered to children in either English or Spanish. The language chosen for assessment depended on which one was determined by the parent and teacher to be the dominant language of the child. However, due to missing data on this variable, language of assessment was not taken into account as a variable in the present study.

The LAP-D is a norm-referenced developmental assessment that aims to assist educators in developing teaching strategies, as well as to assess change in children's competency levels over time. The LAP-D provides children with several tasks that progress in difficulty throughout the assessment. The assessment establishes a basal and ends after reaching a ceiling for that child (indicated by inability to complete three of five tasks). It yields both raw scores and standardized scores, as well as national percentiles (Nehring et al., 1992). For the current study, standardized scores were used. The LAP-D (as indicated in the LAP-D manual) has internal consistency and reliability (.76 to .92) and correlates well with other standardized developmental assessments (Nehring et al., 1992). A total of 198 participants had complete LAP-D data at the Pre time point (see Table 1).

Early Learning Accomplishment Profile

The Early Learning Accomplishment Profile (E-LAP; Glover, Preminger, & Sanford, 1988) was administered to children under 36 months of age. The E-LAP assesses skills in a variety of domains, including fine motor, gross motor, language, cognitive, self-help, and social-emotional. For the current study, the language and cognitive subscales were used. As with the LAP-D, E-LAP assessments were

administered to children in either English or Spanish, but again due to missing data on this variable, language of assessment was not taken into account as a variable in the present study.

Standardized scores were reported for the E-LAP as well. The E-LAP helps educators to create a picture of the young child's developmental progress. It can be used for children as young as newborn up to 36 months, as well as for children with disabilities. The E-LAP has been shown to have good reliability and criterion validity in prior studies (Fleming, 2000; Gall, Borg, & Joyce, 1996). A total of 124 participants had complete E-LAP data at the Pre time point (see Table 1).

Preschool Language Scale – 4th edition

The fourth edition of the Preschool Language Scale (PLS-4; Zimmerman, Steiner, & Pond, 2002) was administered to all children. It is designed to assess language development and is developmentally appropriate for children from 2 weeks to about six years of age. The PLS-4 is composed of two subscales: expressive communication and auditory comprehension. It yields an auditory comprehension score, an expressive communication score, and a total language score in the form of both standardized scores and percentiles. For the current study, standardized scores were used. The PLS-4 has been shown to have internal reliability ranging between .47 and .86 for the auditory comprehension sub-scale and between .68 and .86 for the expressive communication sub-scale (Zimmerman et al., 2002). A total of 374 participants had complete PLS-4 data at the Pre time point.

Interaction with Books Survey

The Interaction with Books Survey contained 8 items that teachers responded to about participants. The first two questions included “Interacts with books independently?” and “Requests to be read with/to?” Response options included “several times a day,” “daily,” “twice a week,” “once a week,” or “not at all.” The next question stated “Shows joy when asked to be a character in a book?” Response options included “enthusiastic,” “happy,” “somewhat happy,” “not very happy,” or “not interested.” The remaining questions included “Understands the storyline of at least two stories?” “Understands the difference in characters between stories?” “Can describe setting of at least two stories?” “Understands how the story begins and ends?” and “Understands cause and effect?” Response options included “excellent,” “very good,” “good,” “not sure,” or “not at all.” Responses were coded with either a 0, 1, 2, 3, or 4 (with 4 indicating the most positive response and 0 indicating the least positive). To create a composite, the response codes were added across all 8 items and then divided by 8 to get an average. Possible composite scores ranged from 0 to 4. See Table 3 for a complete list of items and response options.

A principal components factor analysis was also conducted to determine if the items on the survey would reduce to any discernible factors. Results of the factor analysis indicated that 67.51% of the variance was explained by the first component (eigenvalue = 5.40), and 14.23% was explained by the second component (eigenvalue = 1.14). After this, only 6.17% additional variance was explained by a third factor (eigenvalue = .49). In addition, the items loaded highly onto the first two factors. More specifically, six of the

items loaded highly onto Factor 1 (values of .82 and higher). These included items that had to do with characteristics of books (such as identifying characters, retelling a storyline, describing the setting, etc.), so this factor was labeled "Book Knowledge." The other two items loaded highly onto Factor 2 (values of .64 and .71). These items were those that asked if the child reads or plays with books and if the child requests to read. Therefore, this factor was labeled "Book Interest." Analyses were conducted on both the overall composite for the survey (described above) and the two subscales of Book Knowledge and Book Interest.

Operationalizing the Dominant Language of Participants

There were several variables on the Home Environment Survey that indicated some information about the language participants might speak. These variables included the following: father's native language (English, Spanish, Haitian-Creole, or Other), father second language (English, Spanish, Haitian-Creole, or Other), Mother's Native language (English, Spanish, Haitian-Creole, or Other), Mother second language (English, Spanish, Haitian-Creole, or Other), language spoken by child to family member (English, Spanish, Haitian-Creole, English and Spanish, English and Haitian-Creole, or Other), child second language (English, Spanish, Haitian-Creole, or Other), language in which parent read (English, Spanish, Haitian-Creole, or Other), language in which parent read to child (English, Spanish, Haitian-Creole, English and Spanish, English and Haitian-Creole, Other, or do not read), and in what language the child watches television (English, Spanish, Haitian-Creole, English and Spanish, English and Haitian-Creole, or Other). Two additional variables were collected by experimenters. These included:

English as a second language for child (yes or no) and assessment language (English or Spanish). All of these variables were examined for each participant. From these, one new variable was created called "Language of child," with options of English, Spanish, Haitian-Creole, English and Spanish, or English and another language. Children were coded as speaking two languages (either English and Spanish or English and something else) if parents indicated more than one language occurring in the home. However, sample sizes for the Haitian-Creole group were too small for analyses, so this group was dropped, resulting in four categories for the "Language of Child" variables: 1) English, 2) Spanish, 3) English and Spanish, 4) English and Other.

Lastly, an analysis of variance was conducted to examine the possibility of age differences by language group. Results of the ANOVA indicated significant differences in children's ages for the four language groups, $F(3, 550) = 3.47$, $p < .05$. The mean age for each group was as follows: English and Spanish, 3.03 years; English and Other, 2.92 years; English only, 2.68 years; Spanish only, 2.53 years. Children from English- and Spanish-speaking homes were significantly older than those from English only homes and Spanish only homes. No other group differences were significant.

Creation of New Age Variables

To better deal with age of the participants, two new age variables were created. Prior to this, age of participants existed only in terms of age in months. The first new variable categorized participants' ages into years. Based on their age in months, participants were given a code of either 0, 1, 2, 3, 4, 5, or 6. The second new age variable was a dichotomous variable, created to be able to easily examine older children vs.

younger children. Children who were 3 years or older were given a code of 1; children younger than 3 years were given a code of 0.

Results

Exploratory Data Analysis

All relevant variables were examined using the Explore command in SPSS. Any impossible values (due to data entry errors) were turned into missing values. The examination of variables in this manner allowed the researcher to determine if any variables needed to be transformed or recoded. (All transformation and recoding procedures have already been described above).

Research Question 1

This question examined the home literacy environment of all participants overall, as well as broken down by age group and language groups. Variables measuring the home literacy environment (HLE) included how often parents read books with children, how often parents recited poems with children, if parents took children to the library, parental beliefs about the importance of early literacy, and a count of different types of literacy materials available in the home. All of these combined to make the HLE composite score (described above).

Overall Sample

First, descriptives (percentages) of the various home literacy environment variables were examined. By looking at Table 4, it can be seen that about half (55.1%) of parents reported reading to their children one to three times per week, while 38.4% of

parents reported reading *more* than three times per week. In addition, Table 4 indicates that half (50.6%) of parents reported reciting poems with their children one or more times per week. In general, 83.1% of parents had five or more (out of nine possible) of the listed literacy materials available to their children. About one-third (32.5%) of parents reported taking their child to the library. Almost all parents (96.6%) agreed that reading to two and three-year-old children is very useful for them, as reported in Table 4. However, a smaller percentage of parents (78.3%) agreed that it makes sense to read to children who cannot yet talk.

Lastly, the overall score for the home literacy environment (HLE) was examined for all children. The composite score for the HLE was obtained by adding up the points received for each aspect of the HLE and dividing by the total points possible (as described above), giving each participant a percent of total points possible for the HLE. The HLE composite score was .63 (M = .63, SD = .15) for the whole sample, indicating that on average, a child's HLE score was 63% (or 21 points out of a possible 33 points).

Home Literacy Environment by Age Group

These same variables were then examined for the two different age groups described previously: participants under 3 years of age and participants 3 years and older. Similar percentages to those described above can be seen when comparing the two age groups, with a few notable differences. For instance, when examining Table 4 it was easy to see that 37.0% of parents with children 3 years and older reported reading stories more than three times per week, while 40.5% of parents with children under 3 fell into this category. Seven point seven percent of the 3 and up group reported reciting poems three

or more times per week, while 13.0% of the under 3 group reported reciting poems at that frequency. Significance tests (univariate analyses of variance) were conducted. However, analyses did not indicate any significant differences in storybook reading or poem recitation frequency based on age category.

A greater percentage of parents (36.9%) of children 3 and up reported taking their child to the library at least once per week, while only 28.4% of parents with children under 3 reported this, and this difference was significant as indicated by a chi-square analysis, $\chi^2(1) = 4.05$, $p < .05$. More parents with children under 3 (83.3%) agreed with the statement that it makes sense to read to children that can't talk yet, compared to 75.7% of parents with children 3 and up. This difference was also significant, $\chi^2(1) = 4.47$, $p < .05$. Parents with children 3 and older reported more literacy materials available on average to their children ($M_{\text{materials}} = 6.64$, $SD = 1.96$) than parents with children under 3 ($M_{\text{materials}} = 6.13$, $SD = 2.19$), and a univariate analysis of variance revealed that this difference was significant, $F(1, 546) = 8.06$, $p < .01$. Lastly, for the HLE composite score, the pattern for the two age groups was similar to that for the whole sample ($M_{3\text{andup}} = .64$, $SD = .16$; $M_{\text{under3}} = .63$, $SD = .14$) and not significantly different.

Home Literacy Environment by Language Group

In addition, the composition of the home literacy environment was examined for four language groups (based on primary language(s) child is exposed to in the home, as described previously). These included the following: 1) English only, 2) Spanish only, 3) English and Spanish, 4) English and Other. Table 5 presents the means and percentages for the various aspects of the home literacy environment for each language group. In

terms of reading frequency, a univariate analysis of variance revealed that some of the groups differed significantly on how many times per week they read to their children, $F(3, 581) = 3.31$, $p < .05$. Specifically, as can be seen in Figure 1, the English group ($M = 2.81_{\text{times/wk}}$, $SD = 1.27$) reported reading to their children significantly more often than the English and Other group ($M = 2.13_{\text{times/wk}}$, $SD = 1.44$). The Spanish group ($M = 2.61_{\text{times/wk}}$, $SD = 1.40$) and English and Spanish group ($M = 2.66_{\text{times/wk}}$, $SD = 1.26$) fell in between these two in terms of reading frequency, though there were no significant differences with these groups. Another univariate analysis of variance was conducted to examine recitation of poems, and there was also a difference found here, $F(3, 565) = 3.10$, $p < .05$. Interestingly, this time it was the English and Other group ($M = 1.58_{\text{times/wk}}$, $SD = 1.48$) that reported reciting poems most often during a week with their children (also seen on Figure 1), significantly more than the English and Spanish group ($M = .92_{\text{times/wk}}$, $SD = 1.29$). Again, the other two groups fell in between: $M = 1.09_{\text{times/wk}}$, $SD = 1.29$ for the English group and $M = 1.21_{\text{times/wk}}$, $SD = 1.48$ for the Spanish group.

The language groups also differed significantly on the amount of literacy materials available in the home, $F(3, 587) = 22.22$, $p < .001$. As can be seen in Figure 2, the English only group reported the most ($M = 7.11$, $SD = 2.05$), and a univariate analysis of variance indicated that they had significantly more than the Spanish group ($M = 5.50$, $SD = 2.09$), significantly more than the English and Spanish group ($M = 6.29$, $SD = 1.92$) and more than the English and Other group ($M = 4.95$, $SD = 1.74$). The English and Spanish group also had significantly more literacy materials than the Spanish only and

English and Other groups. There were no differences between the Spanish only and English and Other groups.

The groups did not differ on taking their child to the library. But there was a significant difference between the groups in terms of parental beliefs. First, a chi-square analysis indicated that the groups differed significantly on whether they believed that reading to two and three year old children is useful for the children, $\chi^2(3) = 8.03$, $p < .05$. Specifically, all participants (100%) in the Spanish group agreed with this statement, 98% of the English and Spanish group agreed, 95% of the English and Other group agreed, and the English group had the lowest percent in agreement, at 94.3%. The groups also differed on whether they agreed that reading to a child who can't talk yet makes sense, $\chi^2(3) = 24.74$, $p < .001$. Interestingly, the English group had the highest percentage in agreement this time, at 87.2%. Seventy one point six percent of the Spanish group and 75.2% of the English and Spanish group agreed. However, only 55.6% of the English and Other group agreed with the second parental belief statement.

Lastly, the HLE composite score was examined for the language groups. A univariate analysis of covariance was conducted (with parental education as the covariate) and, unlike with the age groups, significant differences in the HLE composite score were found for the language groups, $F(3, 581) = 10.12$, $p < .001$. Specifically, the English group ($M = .67$, $SD = .15$) scored higher than the Spanish group ($M = .59$, $SD = .15$), the English and Spanish group ($M = .62$, $SD = .14$), and the English and Other group ($M = .56$, $SD = .17$). The English and Spanish group also scored significantly higher than the English and Other group. No other group differences were significantly different. In

other words, even after controlling for parent education, parents in predominantly English-speaking homes engaged in various literacy activities a little more frequently (i.e. reading books, reciting poems, trips to library), were more likely to have a variety of literacy materials available in the home, and were more likely to strongly agree with the importance of literacy for young children, when compared to the other three language groups.

Research Question 2

Question 2 examined the relationship(s) between the home literacy environment and measures of children's emerging literacy development. These relationships were first examined for the whole sample and then broken down by the two age groups, given the age diversity in the sample. To answer these questions, correlations were performed between the continuous home environment variables (frequency of reading books, frequency of reciting poems, total literacy materials available, and HLE composite) and the outcome measures (continuous variables, including LAP-D language naming and language comprehension subscales, E-LAP language scale, and PLS-4 auditory and expressive communication scales). Univariate analyses of variance were conducted for the dichotomous home environment variables (if parent takes child to library; parental beliefs) to determine if there were differences for any of the outcome measures. Correlations and ANOVA's were also conducted between the aforementioned home environment variables and variables indicating interaction with books (interacts with books independently, requests to be read to, understands various features of storybooks, etc.).

Overall Sample

To begin with, relationships between reading frequency and early literacy outcomes, and recitation of poems and outcomes, were examined for the whole sample of children. As seen in Table 6, correlational analyses indicated that the frequency with which parents reported reading books with their children was not related to children's scores on either subscale of the preschool language scale (PLS4). However, children who were read to more often had a higher overall score on the Interaction with Books survey, $r = .15$, $p < .05$, as well as on the Book Knowledge subscale, $r = .15$, $p < .05$. In other words, children whose parents reported reading to them more times per week were also rated by their teachers as having more knowledge about books. There was not a significant relationship with Book Interest (the other subscale of the Interaction with Books survey). In addition, reciting poems more often during a week was not related to children's scores on the PLS4 or to children's knowledge about books or interest with books.

Next, the relationship between number of literacy materials available and literacy outcome measures were examined. As indicated by Table 6, correlational analyses revealed that the number of literacy materials available in the home was not related to children's scores on the PLS4. However, the number of literacy materials available in the home was related to a child's overall score on the Interaction with Books survey, $r = .22$, $p < .001$, as well as to a child's Book Knowledge (subscale of the Interaction with Books survey), $r = .23$, $p < .001$. In other words, children who had more materials available in

their home were also rated by their teachers as having more knowledge about books (i.e. retelling a storyline, understanding cause and effect, describing characters, etc.).

Lastly, the relationships between taking children to the library and outcomes, and parental beliefs and outcomes were examined. Univariate analyses of variance were conducted to examine these relationships. Whether or not parents took children to the library served as the IV in one set of analyses, and whether or not parents strongly agreed with the indicated parental belief statement served as the IV for a second set of analyses. Results indicated that there were no significant differences between children whose parents reported taking them to the library at least once per week and children who did not go to the library, in terms of scores on the PLS4 subscales and scores for book interest and book knowledge. Similarly, how much parents agreed with the statement that it makes sense to read to children who can't talk yet was not related to children's scores on the PLS4. However, as seen in Table 7, children whose parents strongly agreed with this statement had higher scores on Book Knowledge (M = 2.12, SD = 1.06), compared to children whose parents were less clear on their agreement with this statement (M = 1.78, SD = 1.02), $F(1, 261) = 4.83$, $p < .05$. In other words, children whose parents agreed with the importance of reading to children who cannot yet talk were more likely to be rated by their teachers as understanding various features of books, such as the storyline, the difference between characters, how the story begins and ends, and cause and effect in the story.

Children 3 and up

For children age 3 years and older, the relationship between reading frequency and literacy outcomes was examined via correlational analyses. As indicated in Table 6, there was not a significant relationship between parent reading frequency and performance on the language naming or language comprehension subscales of the Learning Accomplishment Profile Diagnostic (LAP-D; used with children 36 months and older). However, there was a significant relationship between parent reading frequency and the standard score of the auditory comprehension subscale of the Preschool Language Scale (PLS4), $r = .23$, $p < .05$. In other words, children age 3, 4 or 5 who were read to more often had a higher score for auditory comprehension. Reading frequency was not related to the expressive communication subscale of the PLS4 for this age group, $r = .10$, $p = .35$. In addition, reading frequency was significantly related to the overall score for the Interaction with Books survey, $r = .18$, $p < .01$, as well as to the Book Knowledge subscale $r = .19$, $p < .01$. It was not related to the Book Interest subscale.

Next, relationships between reciting poems in the home and outcome measures, and between literacy materials available and outcome measures were examined via correlational analyses. By examining Table 6, it can be seen that the frequency with which parents reported reciting poems with their children (age 3 and up) was not significantly related to children's scores on the subscales of the LAP-D or PLS4 or to their scores on the Interaction with Books survey. Similarly, the number of literacy materials available in the home to older children was not related to their language scores on the LAP-D or PLS4. However, it was related to their score on the Interaction with

Books survey, r = .25, p < .001, as well as to the Book Knowledge subscale, r = .26, p < .001. In other words, older children with more literacy materials available to them in their home were rated by their teachers as having more knowledge about books.

Lastly, relationships between whether parents took children to the library and outcomes measures, and between parental beliefs and outcome measures were examined. As with the overall sample, whether or not parents took children to the library, and parents agreement with the parental belief statement both served as IV's in two separate set of analyses of variance. As indicated in Table 7, older children's scores on the subscales of the LAP-D, PLS4, and Interaction with Books survey were not related to library vistation. In addition, LAP-D and PLS4 scores were also not related to parents' view of the importance of reading to children who cannot yet talk. However, for parents who did agree with this statement, older children had higher overall scores on the Interaction with Books survey, $F(1, 219) = 4.46, p < .05$, as well as the Book Knowledge subscale ($M = 2.22, SD = 1.05$), $F(1, 219) = .62, p < .05$ than children whose parents did not clearly agree, ($M = 1.86, SD = 0.98$). There were no differences for the Book Interest subscale. In other words, as with the overall sample, children 3 years and older who had parents that strongly agreed that it makes sense to read to children who cannot yet talk were rated by their teachers as demonstrating more knowledge about the parts of a book (storyline, characters, setting, etc.).

Children under age 3

Finally, analyses were conducted for the group of children under 3 years of age. First, the relationship between reading frequency and literacy outcomes, and between

recitation of poems and outcomes were examined (via correlations). The amount that parents reported reading each week to their children was not related to young children's scores on the ELAP, PLS4, or the Interaction with Books survey. This same pattern was found for the recitation of poems (no significant relationships).

Next, correlations were conducted to examine the relationship between number of literacy materials and outcomes for younger children. As indicated in Table 6, unlike with the older children, the number of literacy materials (range from 0 to 9) that parents reported having available in the home was significantly related to younger children's developmental age score on the language subscale of the Early Learning Accomplishment Profile (ELAP), where children with more literacy materials available scored higher on this language measure $r = .32$ $p < .05$. (The ELAP is used with children from birth to 36 months of age.) Interestingly, there was not a relationship between the amount of literacy materials available and the subscales of the preschool language scale. In addition, the number of literacy materials available to young children was not related to their book interest or book knowledge.

Lastly, univariate analyses of variance were conducted to examine the relationship between whether parents took their children to the library and outcomes, and whether parents strongly agreed with the parental belief statement and outcomes. Means are displayed in Table 7. As with the older children, there were no significant differences in children's scores on the ELAP, PLS4, or Interaction with Books survey for children who went to the library with their parents at least once a week versus those who did not. There were also no significant differences in young children's scores on these measures

for children whose parents strongly agreed with the importance of reading to young children versus those who did not.

Research Question 3

This question examined the relationships between various measures of the HLE and emergent literacy outcomes for each of the four language groups (English, Spanish, English and Spanish, English and Other). To address this question, correlational analyses between HLE variables and outcome measures were conducted separately for each language group. The results of these analyses are presented in Table 8.

To begin with, when examining only children whose dominant language was English, analyses revealed a surprising relationship, where the frequency with which parents read to children was significantly *negatively* related to children's scores on the expressive communication subscale of the PLS4, $r = -.32$, $p < .05$. In other words, English-speaking children who were read to more often tended to have lower scores for expressive communication. In addition, the composite score for the HLE was also significantly *negatively* related to children's scores on both the auditory comprehension subscale, $r = -.28$, $p < .05$, and the expressive communication subscale, $r = -.40$, $p < .05$, of the PLS4. Once again, this indicates that English-speaking children who had a higher overall percentage score for the HLE tended to have lower scores on auditory comprehension and expressive communication. As indicated in Table 8, no other relationships between HLE measures and outcomes were significant for English-speaking children.

Next, when examining only children whose dominant language was Spanish, correlational analyses revealed a positive relationship between the frequency with which parents read to their children and children's scores on the expressive communication subscale of the PLS4, $r = .65$, $p < .05$. However, the sample size for this analysis was very small (N = 14). In other words, for this small group of Spanish-speaking children, those who were read to more often during the week tended to have higher scores for expressive communication. No other relationships were significant for Spanish-speaking children.

For children from both English and Spanish-speaking homes, the results presented in Table 8 indicate a positive relationship between the number of literacy materials available in the home and children's scores on the auditory comprehension subscale of the PLS4, $r = .31$, $p < .05$. The number of literacy materials was also positively related to children's knowledge about books, $r = .18$, $p < .05$. In other words, for children who spoke both English and Spanish, having more literacy materials available in the home was related to higher scores for auditory comprehension and more understanding about books. There was also a positive relationship between the overall HLE composite score and auditory comprehension scores for these children, $r = .32$, $p < .05$, as well as between the HLE composite score and book knowledge, $r = .18$, $p < .05$. No other relationships were significant for this group.

Lastly, children who spoke both English and another language were examined. Surprisingly, as indicated in Table 8, no relationships were significant for this group.

Research Question 4

Question 4 examined the classroom literacy environment overall. This included responses from teachers on 40 different survey items. Descriptive analyses were conducted to examine the frequency with which teachers engaged in various literacy activities and practices in the classroom. Percentages are presented in Table 9. In general, a large percentage of teachers reported engaging their students in certain literacy activities in the classroom, while other activities did not appear to be occurring very often. For instance, only 44% of teachers reported that they encourage children to write on their own at least once per day. In addition, a surprising 17.6% reported not encouraging children to write at all during the week.

On the other hand, a larger percentage (62.8%) of teachers reported that they ask the children questions about books while reading at least once per day, and only 3.4% reported not doing this at all. In addition, 50.7% of teachers reported using rhymes at least once per day to help children become aware of the sounds in words. Interestingly, only 2.3% of teachers reported not doing this activity at all during the week. Similarly, 42.5% of teachers brought children's attention to the separate sounds in words at least once per day. But 34.0% of teachers reported never writing down children's stories and reading them back to the children. And only 58.5% of teachers reported that they respond to what children say and extend conversations at least once per day. While 48.5% of teachers reported giving children the opportunity to practice writing their name at least once per day, only 51.8% reported reading to children in small group settings and only 62.7% reported reading in whole group settings at least once each day – an activity that

should be fairly easy for all teachers to engage in. Interestingly, 58.0% of teachers reported that they have children work on worksheets at least 1-2 times per week (or more). Surprisingly, 93.2% of teachers reported that they read books at least 1-2 times per week that represent children's home language and culture.

Research Question 5

Question 5 examined the relationship(s) between the classroom literacy environment and measures of emerging literacy development, for the overall sample of children and broken down into the two age groups. The composite score (described above) for the Instructional Practices Survey was used as the measure of the classroom literacy environment. This score represented the percent of total points possible (out of 200) for the classroom based on how frequent the teacher reported engaging in various literacy activities. Bigger numbers indicated higher quality. This composite score was correlated with the various literacy outcomes for the whole sample and broken down by two age groups.

To begin with, when examining the whole sample, the quality of the classroom literacy environment (CLE) had a surprisingly negative relationship with children's standard scores on the expressive communication subscale of the PLS4, $r = -.23$, $p < .05$. In other words, teachers who reported engaging students in literacy activities more frequently throughout the week had students that scored lower on expressive communication. However, a higher-quality classroom literacy environment was related to higher scores for children on the Interaction with Books survey, $r = .15$, $p < .05$, as well as the Book Knowledge subscale, $r = .19$, $p < .01$, but not for book interest.

For children age 3 years and older, there were no significant relationships between the CLE score and LAP-D language scores. In addition, though the CLE was not significantly related to PLS4 scores, it approached significance and had a negative relationship, similar to the overall sample, for the standard score for expressive communication, $r = -.23$, $p = .063$. As the correlation is the same in magnitude, the non-significance is likely due to a drop in sample size. Unlike the overall sample, there were no significant relationships for older children between the CLE and their book interest or book knowledge.

For children under 3 years of age, there were no significant relationships between the CLE and ELAP or between the CLE and PLS4. There were also no significant relationships with children's book interest or book knowledge.

Following this, a sub-composite of the CLE survey was created by identifying items that clearly involved verbal communication between the teacher and children (or "teacher-child verbal interaction items"). The researcher decided to examine these items because one of the main objectives of the current study was to focus on children's oral language skills (in terms of children's literacy outcomes), and verbal interaction between children and adults is known to facilitate the development of both expressive and receptive communication in children. Twenty-three of the 40 items were identified as fitting these criteria (these items are indicated with a "1" superscript next to them in Table 9). A cluster analysis was conducted with these 23 items. Results indicated that teachers (or classrooms, as each survey completed represented one classroom) clustered into two groups. Cluster 2 had higher means than Cluster 1 on all 23 items. In other

words, teacher-child verbal interactions that centered around literacy occurred more frequently for the children in the Cluster 2 classrooms. For instance, teachers in Cluster 2 reported using rhymes to help children become aware of sounds more frequently (M = 4.08, SD = .97, or at least once per day) than teachers in Cluster 1 (M = 2.82, SD = .59, or a little less than 3-4 times per week).

Interestingly, children under 3 years of age in the high-quality cluster (Cluster 2) performed significantly *lower* on the language subscale of the ELAP (M = 32.81, SD = 11.17) than children in the lower-quality cluster (M = 39.23, SD = 11.21), $F(1, 49)$ = 4.07, $p < .05$. On the other hand, children 3 years and older in the high-quality cluster performed significantly *higher* on the language naming subscale of the LAP-D (M = 17.27, SD = 8.39) than children in the lower-quality cluster, (M = 13.27, SD = 6.48), $F(1, 98) = 6.22$, $p < .05$. In addition, children 3 years and older performed higher on the auditory subscale of the PLS4 (M = 49.35, SD = 7.53) than children in the lower-quality cluster (M = 44.75, SD = 7.53), $F(1, 69) = 6.32$, $p < .05$. They also scored higher on the expressive communication subscale, (M = 53.07, SD = 8.92) than those in the lower-quality cluster, (M = 47.86, SD = 7.28), $F(1, 69) = 6.66$, $p < .05$. Children under 3 years of age did not show this pattern. Lastly, children in the higher-quality cluster showed more interest in books, $F(1, 265) = 4.43$, $p < .05$, as well as more knowledge about books, $F(1, 265) = 42.05$, $p < .001$, than those in the lower-quality cluster.

Research Question 6

This question examined the relationship between the home literacy environment (HLE), classroom literacy environment (CLE), and children's outcomes. First, the

relationship was examined between the HLE and CLE composite scores. Results indicated that these two variables were not significantly related, r = -.036, p = .527. The bivariate relationship between HLE and CLE was then examined for the two age groups (children under 3 and children 3 years and older), and the relationship was still non-significant. In other words, a child from a high-quality HLE did not necessarily attend a preschool with a high-quality CLE (and vice versa, where a child from a low-quality HLE did not necessarily attend a preschool with a low-quality CLE).

Variables were then entered into a series of hierarchical regressions. The first model (Model A), as seen in Tables 10 through 16, examined whether or not the CLE had an impact on children's literacy outcomes above and beyond the HLE for various dependent variables. For Step 1 of Model A, gender (dummy coded) and age in months were entered as control variables, followed by the HLE composite score in the second step, the CLE composite score in the third step, the HLE x gender interaction and HLE x age interaction in the fourth step, and the CLE x gender interaction and CLE x age interaction in the fifth step. Model A was repeated for each outcome variable of interest as follows: PLS4 expressive communication standard score (Table 10), PLS4 auditory comprehension standard score (Table 11), knowledge about books (Table 12), interest in books (Table 13), LAP-D language comprehension percentile score (Table 14), LAP-D language naming percentile score (Table 15), and E-LAP language developmental age score (Table 16).

Results showed some significant findings for the PLS4. The HLE predicted a significant portion of the variance (11%) in expressive communication, b = 24.78, t =

2.14, $p < .05$. The CLE contributed significantly to prediction above and beyond the HLE, $b = -21.65$, $t = -2.09$, $p < .05$. However, the b weight was negative, indicating a negative relationship between the CLE and children's expressive communication scores. This is consistent with the prior finding under Research Question 5, where there was a negative bivariate correlation between these two variables. With regard to auditory comprehension, the amount of variance explained by the HLE was significant, $\Delta R^2 = .091$, $F(1, 58) = 6.08$, $p < .05$. In other words, the HLE explained an additional 9.1% of the variance after controlling for child gender and age, $b = 31.30$, $t = 2.47$, $p < .05$. The CLE did not explain additional variance above and beyond the HLE for auditory comprehension.

A significant portion of the variance in Book Knowledge was explained by the HLE, $\Delta R^2 = .045$, $F(1, 152) = 7.38$, $p < .01$. In other words, for every one point increase in the HLE, there was a 1.45 increase in children's book knowledge, $b = 1.45$, $t = 2.72$, $p < .01$. Neither the CLE nor the interaction terms (HLE x gender, CLE x gender) explained any additional significant portion of the variance. With regard to Book Interest, the amount of variance explained by the HLE *approached* significance, $\Delta R^2 = .019$, $F(1, 153) = 3.17$, $p < .1$. In other words, for every one point increase in the HLE, there was a 1.03 increase in children's book interest, $b = 1.03$, $t = 1.78$, $p < .1$. As with Book Knowledge, the CLE and the interaction terms did not explain any additional variance in Book Interest.

Next, the results from Model A for LAP-D language comprehension and language naming scores were examined. Surprisingly, neither HLE nor CLE scores contributed to

the prediction of children's language comprehension and naming proficiency. Similarly, for ELAP language scores, the HLE and CLE did not contribute anything to prediction.

The next set of hierarchical regressions (Model B) examined whether or not there was an interaction between the HLE and CLE for the various dependent variables. For Step 1 of Model B, gender (dummy coded) and the HLE composite score were entered, followed by the CLE composite score in Step 2, and the interaction term HLE x CLE in Step 3. Model B was repeated for each outcome variable of interest as follows: PLS4 expressive communication standard score, PLS4 auditory comprehension standard score, knowledge about books, interest in books, LAP-D language comprehension percentile score, LAP-D language naming percentile score, and E-LAP language developmental age score. As the predictability of gender, HLE, and CLE were already discussed, only the interaction term (HLE x CLE) was focused on for Model B. The results of the Model B regressions indicated no significant interaction between the home environment score and classroom environment score for any of the emergent literacy variables.

Overall, it appears that while the HLE was a good predictor for some of the literacy measures examined, the CLE contributed to prediction beyond the home environment only for expressive communication. In addition, the classroom environment did not moderate the effects of the home environment for literacy skills.

Discussion

Findings from the current study help to provide a more comprehensive picture of the home and classroom literacy environment of children from low-income and linguistically diverse families. In general, it appeared that the literacy environments these children were exposed to were highly variable. Several developmentally appropriate activities, such as reading frequently, trips to the library, and availability of literacy materials, were occurring in the home (more often for certain groups than others). Similarly, in the classroom, teachers were making impressive efforts to help children learn about different sounds and to give them time to write. However, other basic activities like small group and individual reading were not happening often enough (i.e. should be occurring on a daily basis) in the home and classroom environments. In a position statement addressing developmentally appropriate practices in reading, the International Reading Association (IRA) and National Association for the Education of Young Children (NAEYC) cited the following as an important and necessary activity: "Adults' daily reading of high-quality books to individual children or small groups, including books that positively reflect children's identity, home language, and culture" (IRA & NAEYC, 1998, pp 38). In addition, analyses revealed some important relationships between the home/classroom environments and children's literacy/language skills, though these relationships did not always hold for all groups examined.

Upon closer examination, the families in the study appeared to have several literacy-related materials available to children (an average of 6.4 out of 9, with more available in English-speaking homes than the other language groups examined), including pens/markers, crayons, paper, books, coloring books, magazines, flash cards, a dictionary, and a calendar. This finding is somewhat unexpected, as the monetary resources of these families are very limited. Materials like those described above are important building blocks for early literacy (Weinberger, 1998). They provide several ways in which children might engage with print and have the opportunity to interact with it on a daily basis.

In addition, items such as magazines, dictionaries, and calendars expose to children to *environmental print*. Environmental print (and young children's exposure to it) is another key component of the home literacy environment. Children are surrounded by literacy-related materials and engage in literacy-related activities in the daily routines of life, so much that parents often do not recognize the value of such experiences. For instance, Weinberger (1998) notes that, other than more conventional activities like joint reading and writing, children might pick up grocery items by recognizing labels, arrange alphabet letters on the refrigerator, use a home computer, discuss a television program with parents, write letters to friends, see pictures and words on signs and billboards, engage in nursery rhyming and storytelling with parents, etc. These activities happen often before a child enters formal schooling and are important for literacy development. Such activities help children to begin to make meaning out of words, and to link pictures with text from an early age (Weinberger, 1998). All of these less well-known features of

the home literacy environment are important for teachers and other instructors to become aware of, so that they might build on these experiences in the classroom, thereby starting off on the best foot possible with preschool literacy. Therefore, it is encouraging to note that most parents in the current study reported the availability of several environmental print materials.

On the other hand, it appears that only about 38% of the children are being read to more than three times per week. This pattern was similar for children under age three compared to those over three, and for the various language groups examined (with the exception of the English and Other group, who reported even less book reading). This finding is concerning, as best practices in early literacy stress the importance for daily reading with children (IRA & NAEYC, 1998). Indeed, the language differential (i.e. vocabulary skills) seen between children from low-income families and children from middle and higher-income families begins to show signs in the toddler years, much earlier than researchers used to believe (Tamis-LeMonda, Cristofaro, Rodriguez, & Bornstein, 2006). This stresses the importance of parents reading and interacting with their children around literacy events, even before children begin to use language themselves. However, the estimate found in the current study is not necessarily the same for all low-income families. For instance, Helen Raikes and colleagues (2006) found that half of the low-income mothers in their sample of 2,581 were reading on a daily basis to their children.

In addition, despite assumptions in earlier research, these findings do not indicate that parents from low-income families do not recognize the importance of reading to

young children. In fact, about 97% of parents strongly agreed that reading to young children is important for them, and this pattern was similar across all age groups and language groups examined. A smaller percentage of parents (78%) strongly agreed that it makes sense to read to children who do not yet use language (with slightly more parents of children 3 years and older agreeing with this statement), though this is still a large majority. Therefore, the low frequency of reading found in the current study might be due to other factors, such as limited parental free time. However, the parental belief items displayed somewhat of a ceiling effect, where the majority of participants strongly agreed with the statements, as noted above. It is possible that the statements were worded in a way that prompted most participants to respond similarly. Furthermore, simply asking parents to indicate whether or not it is important to read to young children may not have provided an accurate picture of general parental beliefs about literacy. The statements were not very specific and did not delve into too much detail about what these parents really think. It is possible that more training for these parents, not just on the importance of reading, but also on how often they should be reading and the importance of responding to and engaging children during reading, would be beneficial.

Indeed, prior research has indicated that the *quality* of reading happening between parents and children is just as important (if not more important) than the quantity of reading (e.g. Baker & Scher, 2002). Unfortunately, the current study did not have any measures of quality of reading. But other studies have indicated its importance. For instance, Baker and Scher (2002) found that an entertainment approach to literacy was more beneficial for children (as far as development of literacy skills) than an approach

that viewed reading as a skill set to be learned. In their study, low-income mothers tended to use the reading as skills-to-be-learned approach.

Spreadbury (1998) also discussed how a child is an important and active partner in book reading, even when the child has limited verbal skills. An infant, for instance, takes in visual stimulation of the words and the pictures, along with learning the conventions of reading (turning pages, right way to hold a book, etc.). A young child with limited language also directs a parent's attention by pointing out various parts of the book, as well as reinforcing the parent by displaying happiness and enthusiasm during reading. In addition, Spreadbury (1998) identified some components of the ideal kinds of interaction that should be happening between a mother and her child as they read aloud together. These include the following; *intervention,* where the parent comments on the text and pictures of the book and asks the child questions; *interaction,* where the child is viewed as a conversation partner, even if the child does not yet have speech; *insights into literacy,* where words are being connected with pictures for the child, and the child is learning the conventions of books (i.e. child sees the appropriate way to read from left to right when parent prompts child to turn the page); *enjoyment of literacy*, when the parent makes reading fun for the child (as noted above); and *intimacy,* where reading becomes an important, cherished event, which prompts the child to engage with literacy in the years to come. Research on how to encourage and improve these components of book reading in low-income families would be a worthwhile endeavor. Also, research on the quality of book reading in families where English is not the dominant language is limited. This area should be explored in the future, as interesting questions could be examined.

For example, does reading with parents mostly in Spanish help to strengthen children's literacy abilities in English? Or should language-minority children be exposed to English books more often in the home to prepare them for entrance into the U.S. school system?

When examined by language group, only 56% of parents from the English and Other grouping strongly agreed with the importance of reading to children who cannot yet speak (with "other" referring to a language other than English or Spanish, which was most often Haitian-Creole). Interestingly, this language group also reported reciting poems most frequently with children, but reading books less frequently, compared to the other groups. This may be due to other factors not examined in the current study, such as cultural variables, about the importance of reading or whose responsibility it is to teach reading (parents vs. school). It is also possible that these findings may be due to the limited availability of books in the native language of these families, as children's books are most commonly available in either English or Spanish. In addition, the phrase "reciting poems" as worded on the survey is a little vague and may have been interpreted in several possible ways by parents (i.e. nursery rhymes, story telling, children's poems, etc.). Perhaps these language minority families engage in more verbal language activities (i.e. telling stories, singing, etc.), as actual books in their language are limited.

Unfortunately, only 33% of families in the current study reported taking their children to the library. Other studies with similar populations have confirmed that this minimal usage of the library is due to limited resources of these families, including limited transportation and time, as well as possible anxiety over damaging the borrowed books (Nespeca, 1995). It cannot be assumed that these parents do not understand the

benefit of exposing children to libraries, as questions regarding their beliefs on this were not asked in this study.

Frequency of book reading between parents and children and number of literacy materials available in the home were both related to children's knowledge about books, where children who were read to more often and who had more exposure to literacy materials scored higher on the measure of book knowledge. In addition, parents who strongly agreed about the importance of reading to children who cannot yet talk also had children that demonstrated more knowledge about books. These patterns were found for children age 3 and up, but not for those under 3. In addition, for children age 3 and up, those read to more often had higher scores on auditory comprehension. For children under 3, those with more literacy materials available in the home scored higher on the measure of language. These results support prior findings in the literature about the importance of book reading for language development, and specifically for auditory comprehension. Interestingly, for younger children (under 3), exposure to literacy materials seems to be especially important. This may be because infants and toddlers that have more of these materials available to them are more exposed to environmental print. As noted earlier, exposure to environmental print is important for children to make connections between words and pictures, and to begin to attach meaning to words at an early age (Spreadbury, 1998).

In addition, for children from both English and Spanish-speaking homes, literacy materials were important for auditory comprehension and book knowledge. Surprisingly, there was a negative relationship between reading frequency and expressive

communication for children from English-speaking homes, meaning that children read to more often had lower scores on expressive communication (and vice-versa, where children read to less often had higher expressive communication scores). One possibility for this finding is that the parents may have had some prior knowledge of their children's poorer communication skills (i.e. from some prior assessment), and may have been encouraged to read more frequently with them to help ameliorate this problem. Another possibility is that children with higher expressive communication scores most likely talk more and may also be more active children. Parents of these children may find it harder to get them to sit still long enough to listen to a story, so they may give up trying. Unfortunately, due to missing data, the sample size was too small for many analyses for children from homes where English and a language other than Spanish were spoken.

The current study also revealed a more comprehensive picture of the preschool classrooms for these children from low-income families. Teachers reported frequently engaging children in some literacy activities, while not engaging them in others very often. For instance, 50.7% of teachers reported using rhymes at least once per day to help children become aware of the sounds in words. This is an encouraging finding, as nursery rhymes and songs help develop children's phenomic awareness (Campbell, 1998). They also facilitate children's use of rhymes. In addition, children's books often use rhyming, which can be a precursor for early reading (Campbell, 1998).

On the other hand, only 51.8% of teachers reported reading to children in small group settings and only 62.7% reported reading in whole group settings at least once each day. As mentioned previously, reading in a group setting is a very important activity in

the classroom environment, one that should be occurring at least once a day, if not more (IRA & NAEYC, 1998). Teachers' comments on pictures and text while reading encourage children to be active participants. It also helps children to make stronger connections between pictures and words (Campbell, 1998). Teachers further facilitate learning by asking questions and drawing attention to words printed on the pages. In the current study, 63% of teachers reported doing this at least once per day, while only 3% reported not doing it at all.

It was a pleasant surprise to find that 93.2% of teachers reported reading books that represent children's home language and culture at least 1-2 times per week. As the sample for the current study was incredibly diverse, both in ethnicity and language, this means that teachers were reading book in languages other than English at least some of the time. It is unclear what the dominant language of the teachers was in this study, though due to the area of the country (Miami, FL) several of them were likely bilingual with Spanish as their native language. However, considering the high percentage reported above, it can be assumed that at least some native English-speaking teachers were engaging children in books in other languages. Despite assumptions to the contrary, monolingual teachers *are* capable of fostering literacy and language development with English language learners (ELLs), and it is important for them to do so. For instance, though they do not speak the language, the teacher can put up signs and words around the room in the child's native language (i.e. Spanish materials are readily available, or if the native language is not Spanish, enlisting the help of parents to write out words is another option). The teacher can also ask parents to volunteer in the classroom, or have parents

and/or community agencies bring in resources with native print on them (empty food cartons, magazines, newspapers, books, etc.). Exposure to this environmental print, without much more effort on the part of the monolingual teacher, provides great support for the children's native language as they continue to learn English (Schwarzer, 2007). Teachers can also celebrate the culture of the children's native language by having appropriate materials available in the classroom (books, pictures on the wall, play areas, etc.). This helps remind the children about their native culture, and it also demonstrates to them that both have an important place in the children's lives (Schwarzer, 2007). Though the current study did not delve into an examination of the aspects described here, the fact that teachers are reading books in languages other than English is a great start, and most likely means that these teachers are doing other activities to foster these children's native cultures as well. The advantages and value of languages other than English in the classroom need to be recognized by educators and practitioners working with preschool-aged ELL's so that children's native languages can be fostered and developed along with English, rather than lost and forgotten (Schwarzer, 2007).

The relationship between the quality of the classroom literacy environment and children's literacy development was also examined. The quality of the classroom environment was important for children's knowledge about books, as well as their interest in books. Specifically for children age 3 and up, children in a classroom with a higher quality literacy environment demonstrated better language naming skills, auditory comprehension skills, and expressive communication skills than children in lower quality classrooms.

Surprisingly, the quality of the CLE was negatively related to children's expressive communication (this pattern was also true for children under age 3, and slightly true for those 3 and up). As with the finding from the home literacy environment, this may be because the children with poorer communication skills have teachers who are actively trying to improve the literacy environment. Another possibility for this finding might be due to the curvilinear relationship often noted between childcare quality and income level: children from the poorest families are eligible to receive subsidies for childcare, which means their parents can send them to higher-quality centers. On the other hand, if a child is from a low-income family where the income level is not quite low enough to qualify for subsidies, these children may be more likely to be sent to lower-quality centers.

It appears that the home literacy environment was important for predicting certain emergent literacy skills, including expressive communication skills, auditory comprehension skills, and children's knowledge about and interest in books. This is an important finding, as it implicates the structure of the home environment (activities, parental beliefs, literacy materials) in the development of children's receptive communication skills. Receptive communication skills are thought to be the building blocks for later oral communication skills, as children begin to understand words spoken to them long before they can produce the words themselves (Bjorklund, 2005). In addition, the home environment also appears to be important for encouraging children's love of books from a young age. Suprisingly, the classroom literacy environment added to prediction of expressive communication skills only, but did not contribute to prediction

of any other dependent measures of literacy development above and beyond the home environment. This does not mean that the classroom literacy environment is not important; rather, it indicates that after the influence of the home environment was accounted for, the classroom environment did not account for any more of the remaining variance in most of the measured literacy skills. At first glance, this appears counter-intuitive, as most researchers and educators would expect that the classroom environment should be contributing to children's literacy development beyond the home environment. However, this sample is high-risk, and it may be that most of the daycare and preschool centers children were attending were of lower overall quality, when compared to others around the nation. Perhaps the literacy activities occurring in these classrooms were not that much different or more intense than the literacy activities occurring in the home. Another explanation may be that the measure of the classroom environment was not nuanced enough to create an accurate portrayal of the literacy environment in these classrooms.

In addition, there were no significant interactions found between the home literacy environment and the classroom literacy environment. In other words, contrary to what was hypothesized, the classroom environment did not moderate the effects of the home environment. It was expected that if a child had a low-quality HLE, for instance, that a high-quality CLE could buffer these effects, and positively influence children's literacy development. A positive interaction term would have indicated this kind of effect (or, on the opposite side, a positive result might have indicated that a high-quality HLE could buffer the effects of a low-quality CLE). The lack of significance suggests a few

possibilities. First, it may be that the HLE is much more influential on young children's literacy development than the CLE. Or it may be the case that, if one environment is of low-quality it negatively impacts children, regardless of the quality of the other environment. In other words, if a child is from a low-quality home literacy environment and happens to be attending a high-quality preschool, it may be that the high-quality of the literacy environment of the preschool cannot overcome the detrimental effects of the low-quality home environment (or vice-versa, with a high-quality home literacy environment and low-quality preschool). This points to the need for interventions to address both the home and school literacy environments when trying to influence the development of literacy skills for young children.

Limitations and Areas for Future Research

The current study had several limitations that are important to note. First of all, as noted in several places above, there were issues with the sample size being reduced when several variables were crossed in an analysis. For instance, children with complete home literacy environment data were not necessarily the same children that had complete classroom data, so when the home and classroom environments were examined together, the sample size was reduced to only those participants with data on both of these variables. In addition, it was difficult to determine the dominant language of the child. As described in the methods section, several variables had to be examined to determine children's dominant language(s). In future studies, a more precise measure of child language, as well as whether the child was truly bilingual, would be desirable.

With regard to the home literacy environment, it would have been ideal if the quality of book reading (instead of just frequency) could have been examined, but the current study did not allow for this. The current study also did not capture a complete picture of parental beliefs regarding early literacy or trips to the library, as these variables had to be dichotomized. It is also possible that several of the items serving as indicators of the home literacy environment (presence of materials in the home, taking trips to the library, reading books together, etc.) were indicators that are more appropriate for middle- and higher-income families. Perhaps indicators of a high-quality home literacy environment are different for low-income families. For instance, oral storytelling (an activity not included in the current study) may be an activity which parents of lower SES engage in on a more regular basis.

With regard to the classroom literacy environment, quality of the CLE, as well as children's interaction with books, were determined via teacher report. This is an important limitation to note, as there was most likely single source response bias from the teachers. In addition, the measure of the classroom literacy environment was at the center level, rather than the individual child level (while the measure of the home environment *was* at the child level). This may have created data nesting problems that were not addressed in the current study. It is also important to note that the language assessments were administered in either English or Spanish (whichever was determined by the teacher to be the dominant language of the child). However, due to missing data on this variable, it could not be included in analyses. Lastly, the researcher was not able to precisely determine the age groupings of the various preschool classrooms that participated in the

study. In other words, a particular classroom may have had mostly older children (4 and 5 year olds), mostly younger children (infants), or a mixture of ages (ranging from a few months of age to 5 years).

Therefore, results of the current study point out some areas for improvement in methodology. Findings also point out the importance of studying both the classroom and home literacy environments of young children from low-income, linguistically diverse samples. Future studies could explore similar areas with a more complete dataset of linguistically diverse children (i.e. more non-English speaking children), so that the relationships between the home and school environments could be more fully examined for at-risk preschoolers.

General Conclusions

It appears that adults in the home and school environments of at-risk preschoolers recognize the importance of literacy activities, as adults from both environments tried to engage children in literacy to some degree. While this is heartening, interventions need to continue to target the homes and preschools of these children. In addition, it is important not only to examine these environments and how they might be improved individually, but also to study the relationship between these environments in greater detail. Schools need to recognize the value of literacy and literacy-related experiences that children have at home, especially children from non-English speaking backgrounds. More importantly, schools and classrooms should shape themselves to fit and build off of what is going on in the home environment, rather than forcing the home environment to mold itself around the school (Whitmore, 2007). After all, the home environment is a rich source of learning

and development long before children even enter preschool. In addition, the school must be the vehicle of change that will reach out to families and draw them in, thereby creating the bridge between school and home that is so often lacking in education (Whitmore, 2007). When homes and schools work together to foster children's learning, rather than one blaming the other for not doing "their part," it is the children that reap the benefits (Gosse & Phillips, 2007). This was demonstrated by the success of the Early Authors Program, a home and school literacy project on which the current study was based (Bernhard et al., 2008). However, projects of this kind are limited and need to be developed and implemented more frequently if we are to see lasting improvements in both the home and preschool environments, and thereby language and literacy development of young children.

Appendix: Tables and Figures

Table 1. Overall N's and sub-sample N's for Various Analyses

Type of Sample	N =
Overall	1043
Instructional Practices Survey	784
Family Survey	600
Instructional Practices Survey and Family Survey	341
E-LAP	124
LAP-D	198
PLS-4	374
Interaction with Books	490
Instructional Practices Survey and E-LAP	74
Instructional Practices Survey and LAP-D	131
Instructional Practices Survey and PLS-4	164
Instructional Practices Survey and Interaction with Books	343
Family Survey and E-LAP	55
Family Survey and LAP-D	90
Family Survey and PLS-4	157
Family Survey and Interaction with Books	279
Instructional Practices, Family Survey, and E-LAP	30
Instructional Practices, Family Survey, and LAP-D	65
Instructional Practices, Family Survey, and PLS-4	90
Instructional Practices, Family Survey, and Interaction w/ Books	195

Table 2. Relevant Items and Related Response Scales from Family Survey

Item	Response Scale	
Materials Available		
Which of these are available at home?		
Pens/markers	Yes	No
Crayons	Yes	No
Paper for writing	Yes	No
Coloring books	Yes	No
Books	Yes	No
Magazines	Yes	No
Flash Cards	Yes	No
Dictionary	Yes	No
Calendar	Yes	No
Literacy Activities		
How many times a week do you:		
• Tell or recite poems with your child	Never; Once; Twice; Three times; Three +	
• Read stories to your child	Never; Once; Twice; Three times; Three +	
• Take child to library	Never; Once; Twice; Three times; Three +	
Literacy Beliefs		
• Reading to two and three year old children is very useful for them	I agree / Not really	Not sure / Disagree
• Reading to a child who can't talk yet makes no sense	I agree / Not really	Not sure / Disagree

Table 3. Items and Related Response Scales from the Interaction with Books Survey

Item	Response Scale
Interacts with books independently?	Several times a day Daily Twice a week Once a week Not at all
Requests to be read with/to?	Several times a day Daily Twice a week Once a week Not at all
Shows joy when asked to be a character in a book?	Enthusiastic Happy Somewhat happy Not very happy Not interested
Understands storyline of at least two stories?	Excellent Very good Good Not sure Not at all
Understands difference in characters between stories?	Excellent Very good Good Not sure Not at all
Can describe setting of at least two stories?	Excellent Very good Good Not sure Not at all
Understands how the story begins and ends?	Excellent Very good Good Not sure Not at all
Understands cause and effect?	Excellent Very good Good Not sure Not at all

Table 4. *Percentages for Home Literacy Environment overall and by age group*

	Overall (N = 598)	3 and Up (N = 328)	Under 3 (N = 221)
Times/Wk Read Stories			
Never	6.5%	6.5%	6.4%
Once	15.7%	17.1%	13.2%
Twice	19.8%	20.5%	20.5%
Three Times	19.6%	18.9%	19.5%
> Three Times	38.4%	37.0% (N = 322)	40.5% (N = 220)
Times/Wk Recite Poems			
Never	49.4%	49.2%	50.7%
Once	22.0%	23.3%	20.0%
Twice	12.1%	12.8%	11.2%
Three Times	6.3%	7.0%	5.1%
> Three Times	10.2%	7.7% (N = 313)	13.0% (N = 215)
Take to library? *			
Yes	32.5%	36.9% (N = 111)	28.4% (N = 62)
No	67.5%	63.1% (N = 190)	71.6% (N = 156)
Parental Beliefs			
1. Reading to young children is very useful for them			
Clearly Agree	96.6%	97.2% (N = 315)	96.8% (N = 214)
Unsure/disagree	3.4%	2.8% (N = 9)	3.2% (N = 7)
2. Reading to a child who * can't talk yet makes sense		75.7% (N = 240)	83.3% (N = 180)
Clearly Agree	78.3%	24.3% (N = 77)	16.7% (N = 36)
Unsure/disagree	21.7		
# of Literacy Materials * Available (Range: 1 to 9)	6.41 (2.08)	6.64 (1.96) (N = 328)	6.13 (2.19) (N = 220)
Home literacy composite (% of 33 points possible)	.63 (.15)	.64 (.16)	.63 (.14)

*Chi-square or ANOVA is significant for the two age groups, $p < .05$

Table 5. *Percentages for Home Literacy Environment overall and by language group*

	Overall (N = 598)	English (N = 228)	Spanish (N = 72)	Eng & Span (N = 254)	Eng & Other (N = 44)
Times/Wk Read Stories					
Never	6.5%	6.2%	10.0%	4.4%	15.0%
Once	15.7%	11.5%	15.7%	18.5%	22.5%
Twice	19.8%	20.3%	15.7%	19.8%	25.0%
Three Times	19.6%	19.4%	20.0%	21.4%	10.0%
> Three Times	38.4%	42.7%	38.6%	35.9%	27.5%
Mean (times/wk)*		2.81 (1.27) [A]	2.61 (1.40)	2.66 (1.26)	2.13 (1.44) [B]
Times/Wk Recite Poems					
Never	49.4%	46.4%	49.3%	54.5%	33.3%
Once	22.0%	23.0%	16.4%	22.5%	22.2%
Twice	12.1%	14.9%	13.4%	9.4%	11.1%
Three Times	6.3%	7.2%	6.0%	3.7%	19.4%
> Three Times	10.2%	8.6%	14.9%	9.8%	13.9%
Mean (times/wk)*		1.09 (1.29)	1.21 (1.48)	.92 (1.29) [A]	1.58 (1.48) [B]
Take to library?					
Yes	32.5%	34.9%	19.4%	34.6%	29.7%
No	67.5%	65.1%	80.6%	65.4%	70.3%
Parental Beliefs					
1. Reading to young children is very useful *					
Clearly Agree	96.6%	94.3%	100%	98.0%	95.0%
Unsure/disagree	3.4%	5.7%	0.0%	2.0%	5.0%
2. Reading to a child who can't talk yet makes sense*					
Clearly Agree	78.3%	87.2%	71.6%	75.2%	55.6%
Unsure/disagree	21.7	12.8%	28.4%	24.8%	44.4%
# of Literacy Materials* Available (Range: 1 to 9)	6.41 (2.08)	7.11[A] (2.05)	5.50[C] (2.09)	6.29[B] (1.92)	4.95[C] (1.74)
HLE composite* (% of 33 points possible)	.63 (.15)	.67[A] (.15)	.59[B] (.15)	.62[BC] (.14)	.56[BD] (.17)

*Significant for language groups, $p < .05$; Groups with different superscripts are significantly different from one another, $p < .05$

Table 6. *Correlations between HLE continuous variables and literacy outcomes, overall and by age group.*

		Reading frequency	Poems frequency	Literacy materials	Home Lit Composite
Overall (N = 1043)					
	PLS4: Auditory Comp Std Score	.06 (N = 147)	-.04 (N = 144)	.09 (N = 149)	.05 (N = 147)
	PLS4: Expressive Commun Std Score	.02 (N = 147)	-.03 (N = 144)	.01 (N = 149)	-.02 (N = 147)
	Interaction w/ Books	.15* (N = 266)	.05 (N = 257)	.22* (N = 270)	.18* (N = 266)
	Book Knowledge	.15* (N = 268)	.04 (N = 259)	.23* (N = 272)	.19* (N = 268)
	Book Interest	.09 (N = 271)	.06 (N = 262)	.10 (N = 275)	.09 (N = 271)
3 and Up (N = 562)					
	LAP-D Language Naming %ile	.18 (N = 86)	-.16 (N = 84)	.12 (N = 87)	.14 (N = 78)
	LAP-D Language Comp %ile	.15 (N = 86)	-.14 (N = 84)	.21 (N = 87)	.14 (N = 78)
	PLS4: Auditory Comp Std Score	.23* (N = 82)	.10 (N = 79)	.12 (N = 83)	.22* (N = 82)
	PLS4: Expressive Commun Std Score	.18 (N = 82)	.07 (N = 79)	.08 (N = 83)	.13 (N = 82)
	Interaction w/ Books	.18* (N = 224)	.06 (N = 216)	.25* (N = 228)	.21* (N = 224)
	Book Knowledge	.19* (N = 226)	.03 (N = 218)	.26* (N = 230)	.22* (N = 226)
	Book Interest	.05 (N = 229)	.11 (N = 221)	.10 (N = 233)	.08 (N = 229)
Under 3 (N = 420)					
	ELAP Language Developmental Age	.23 (N = 51)	.14 (N = 50)	.32* (N = 52)	.40* (N = 50)
	PLS4: Auditory Comp Std Score	-.10 (N = 65)	-.13 (N = 65)	.08 (N = 66)	-.09 (N = 65)
	PLS4 Expressive Commun Std Score	-.06 (N = 65)	-.06 (N = 65)	-.12 (N = 66)	-.15 (N = 65)
	Interaction w/ Books	.17 (N = 37)	.07 (N = 36)	.03 (N = 37)	.06 (N = 37)
	Book Knowledge	.13 (N = 37)	.16 (N = 36)	-.01 (N = 37)	.07 (N = 37)
	Book Interest	.22 (N = 37)	-.22 (N = 36)	.12 (N = 37)	.01 (N = 37)

*p < .05

Table 7. *Means for literacy outcomes for HLE categorical variables, overall and by age group.*

		Aspect of HLE			
		Take to library		Parental belief[1]	
		Yes	No	Strongly Agree	Less Clearly Agree
Overall					
	Auditory Comp Std Score (PLS4)	93.60 (13.08) (N = 55)	96.00 (16.27) (N = 90)	95.18 (15.06) (N = 118)	93.42 (17.41) (N = 26)
	Expressive Commun Std Score (PLS4)	91.87 (14.77) (N = 55)	93.93 (16.58) (N = 90)	92.41 (15.53) (N = 118)	96.04 (16.97) (N = 26)
	Interaction w/ Books	2.12 (0.94) (N = 85)	2.12 (0.96) (N = 161)	2.21* (0.95) (N = 203)	1.92 (0.89) (N = 59)
	Book Knowledge	2.01 (1.06) (N = 85)	2.00 (1.06) (N = 161)	2.12* (1.06) (N = 203)	1.78 (1.02) (N = 60)
	Book Interest	2.44 (1.11) (N = 85)	2.48 (1.14) (N = 161)	2.50 (1.13) (N = 203)	2.35 (1.00) (N = 60)
3 and Up					
	LAP-D Language Naming Percentile	33.86 (32.36) (N = 28)	45.11 (32.14) (N = 55)	43.77 (32.70) (N = 62)	39.00 (36.23) (N = 19)
	LAP-D Language Comp Percentile	30.64 (30.59) (N = 28)	43.58 (30.81) (N = 55)	41.48 (31.21) (N = 62)	36.21 (31.44) (N = 19)
	Auditory Comp Std Score (PLS4)	92.91 (11.41) (N = 34)	96.49 (11.98) (N = 45)	96.10 (11.53) (N = 61)	89.53 (13.87) (N = 17)
	Expressive Commun Std Score (PLS4)	94.85 (12.20) (N = 34)	99.00 (12.99) (N = 45)	97.41 (12.08) (N = 61)	94.88 (15.41) (N = 17)
	Interaction w/ Books	2.16 (0.91) (N = 73)	2.21 (0.95) (N = 133)	2.28* (0.94) (N = 169)	1.98 (0.85) (N = 52)
	Book Knowledge	2.07 (1.03) (N = 73)	2.13 (1.04) (N = 133)	2.22* (1.05) (N = 169)	1.86 (0.98) (N = 52)

		Take to library		Parental belief[1]	
		Yes	No	Strongly Agree	Less Clearly Agree
	Book Interest	2.43 (1.10) (N = 73)	2.47 (1.15) (N = 133)	2.48 (1.15) (N = 169)	2.34 (0.97) (N = 52)
Under 3					
	ELAP Language Developmental Age	22.33 (7.92) (N = 18)	19.06 (8.93) (N = 34)	--	--
	Auditory Comp Std score (PLS4)	94.71 (15.66) (N = 21)	95.51 (19.78) (N = 45)	--	--
	Expressive Commun Std score (PLS4)	87.05 (17.44) (N = 21)	88.87 (18.30) (N = 45)	--	--
	Interaction w/ Books	1.98 (1.11) (N = 11)	1.73 (0.85) (N = 24)	--	--
	Book Knowledge	1.80 (1.14) (N = 11)	1.44 (0.93) (N = 24)	--	--
	Book Interest	2.50 (1.28) (N = 11)	2.60 (1.05) (N = 24)	--	--

*p < .05 [1] "It makes sense to read to children who can't talk yet" "--" N < 10 and is not reportable

Table 8. *Correlations between HLE continuous variables and literacy outcomes by language group.*

		Reading frequency	Poems frequency	Literacy materials	Home Lit Composite
English (N = 228)					
	ELAP Language Developmental Age	.15 (N = 23)	.03 (N = 23)	.32 (N = 23)	.32 (N = 23)
	LAP-D Language Naming %ile	.17 (N = 19)	-.18 (N = 19)	-.21 (N = 19)	-.05 (N = 19)
	LAP-D Language Comp %ile	.03 (N = 19)	-.31 (N = 19)	-.13 (N = 19)	-.20 (N = 19)
	PLS4: Auditory Comp Std Score	-.16 (N = 62)	-.20 (N = 62)	-.22 (N = 62)	-.28* (N = 62)
	PLS4: Expressive Commun Std Score	-.32* (N = 62)	-.23 (N = 62)	-.24 (N = 62)	-.40* (N = 62)
	Interaction w/ Books	.17 (N = 100)	.06 (N = 100)	.15 (N = 100)	.18 (N = 100)
	Book Knowledge	.16 (N = 100)	.03 (N = 100)	.14 (N = 100)	.17 (N = 100)
	Book Interest	.10 (N = 102)	.10 (N = 102)	.09 (N = 102)	.09 (N = 102)
Spanish (N = 72)					
	ELAP Language Developmental Age	--	--	--	--
	LAP-D Language Naming %ile	--	--	--	--
	LAP-D Language Comp %ile	--	--	--	--
	PLS4: Auditory Comp Std Score	-.10 (N = 14)	.03 (N = 13)	.14 (N = 14)	-.13 (N = 14)
	PLS4: Expressive Commun Std Score	.65* (N = 14)	.26 (N = 13)	-.24 (N = 14)	.25 (N = 14)
	Interaction w/ Books	.06 (N = 27)	.09 (N = 26)	.24 (N = 28)	.13 (N = 27)
	Book Knowledge	.18 (N = 27)	.15 (N = 26)	.31 (N = 28)	.22 (N = 27)
	Book Interest	-.33 (N = 28)	-.16 (N = 27)	-.03 (N = 29)	-.19 (N = 28)

		Reading frequency	Poems frequency	Literacy materials	Home Lit Composite
English & Spanish (N = 254)					
	ELAP Language Developmental Age	.02 (N = 18)	.17 (N = 17)	.44 (N = 18)	.33 (N = 18)
	LAP-D Language Naming %ile	.21 (N = 54)	-.05 (N = 53)	.21 (N = 55)	.24 (N = 54)
	LAP-D Language Comp %ile	.23 (N = 54)	.04 (N = 53)	.26 (N = 55)	.26 (N = 54)
	PLS4: Auditory Comp Std Score	.20 (N = 64)	.14 (N = 62)	.31* (N = 65)	.32* (N = 64)
	PLS4 Expressive Comm Std Score	.14 (N = 64)	.22 (N = 62)	.22 (N = 65)	.24 (N = 64)
	Interaction w/ Books	.14 (N = 120)	.09 (N = 117)	.15 (N = 122)	.18 (N = 120)
	Book Knowledge	.12 (N = 122)	.08 (N = 119)	.18* (N = 124)	.18* (N = 122)
	Book Interest	.16 (N = 122)	.09 (N = 119)	.04 (N = 124)	.10 (N = 122)
English & Other (N = 43)					
	ELAP Lang Development Age	--	--	--	--
	LAP-D Language Naming %ile	--	--	--	--
	LAP-D Language Comp %ile	--	--	--	--
	PLS4: Auditory Comp Std Score	--	--	--	--
	PLS4 Express Comm Std Score	--	--	--	--
	Interaction w/ Books	.20 (N = 19)	.17 (N = 16)	.36 (N = 20)	.12 (N = 19)
	Book Knowledge	.17 (N = 19)	.13 (N = 16)	.34 (N = 20)	.08 (N = 19)
	Book Interest	.22 (N = 19)	.23 (N = 16)	.31 (N = 20)	.20 (N = 19)

*p < .05 "--" N < 10 and not reportable

Table 9. *Percentage of classroom teachers engaging in literacy-related activities (N = 784)*

Activity	Not at All	1-2 Times Per Week	3-4 Times Per Week	Once Per Day	2+ Times Per Day
Encourage children to write on their own	17.6%	17.9%	20.5%	23.5%	20.5%
[1]Ask children questions about books while reading	3.4%	16.1%	17.7%	39.7%	23.1%
[1]Use rhymes to help children become aware of sounds	2.3%	9.6%	37.5%	29.0%	21.7%
[1]Hold learning activities in small groups	8.3%	11.6%	20.8%	28.2%	31.1%
Write down children's stories and read them back	34.0%	22.6%	22.6%	13.7%	7.1%
[1]Hold conversation with children about current theme	9.4%	19.6%	17.1%	26.3%	27.6%
Use info from assessments to plan activities	10.3%	30.6%	15.9%	26.4%	16.9%
[1]Point to words as you read to children from book/chart	6.4%	11.5%	25.3%	27.3%	29.5%
[1]Respond to what children say; extending conversation	9.2%	4.5%	27.8%	19.5%	39.0%
Assess children's language/ literacy development via observation	7.8%	12.3%	14.3%	37.3%	28.2%
Set time for children to look at books independently	0.0%	9.1%	27.4%	22.1%	41.5%
Guide children to use literacy materials in play	5.0%	12.7%	23.9%	25.6%	32.7%
[1]Bring children's attention to separate sounds in words	15.4%	21.1%	21.1%	23.4%	19.1%
[1]Hold conversation with children during snack/lunch	0.0%	7.3%	19.8%	17.8%	55.1%
Plan activities based on children's interests/needs	0.9%	10.1%	37.4%	24.5%	27.1%

Activity	Not at All	1-2 Times Per Week	3-4 Times Per Week	Once Per Day	2+ Times Per Day
Provide opportunities to practice writing name	24.4%	12.1%	15.1%	24.1%	24.4%
[1]Introduce and define new vocabulary words	5.6%	30.8%	21.1%	20.6%	21.9%
[1]Bring attention to letters in alphabet through books, etc	9.3%	14.7%	34.7%	18.6%	22.7%
[1]Model writing for children; say letters/words as written	16.4%	12.2%	24.4%	27.2%	19.8%
[1]Read to children in small group settings	9.4%	19.1%	19.8%	22.5%	29.3%
Provide activities linked to home culture	16.3%	46.9%	13.9%	15.9%	7.0%
Observe independent handling of books	8.4%	21.7%	28.7%	26.4%	14.8%
[1]Encourage children to reenact a story	19.7%	39.1%	15.9%	18.5%	6.8%
[1]Encourage play with sounds by making new rhymes	15.1%	33.7%	19.3%	25.1%	6.8%
Provide support to child for goal just beyond ability	5.2%	13.1%	26.6%	29.1%	26.0%
[1]Read to children in whole group settings	4.0%	12.4%	20.9%	37.1%	25.6%
[1]Engage in conversations about past/future	11.5%	36.7%	8.5%	27.7%	15.6%
[1]Clap out syllables of words with children	41.0%	18.5%	18.3%	12.5%	9.7%
Encourage children to incorporate writing in play	44.1%	16.5%	10.3%	12.9%	16.2%
Plan activities promoting lang/literacy development	5.9%	20.6%	21.6%	31.0%	20.9%
[1]Encourage conversation about books before, during, and after reading	3.7%	13.7%	24.9%	32.4%	25.3%

Activity	Not at All	1-2 Times Per Week	3-4 Times Per Week	Once Per Day	2+ Times Per Day
Set time aside for children to work on worksheets	42.1%	20.4%	13.1%	12.9%	11.6%
[1]Join in children's dramatic play	5.5%	19.9%	26.3%	23.2%	25.0%
Use samples of writing/ drawing to plan lesson	13.4%	34.2%	23.6%	19.0%	9.9%
Connect story to children's experiences in/out of school	20.3%	33.8%	21.9%	16.2%	7.8%
[1]Read books that represent home language and culture	6.8%	38.1%	27.3%	21.1%	6.7%
[1]Directly translate parts of story into home language	33.9%	19.3%	13.7%	15.8%	17.4%
[1]Use props during reading to teach new vocabulary	14.4%	29.9%	25.6%	16.5%	13.6%
Provide activities that support literacy skill in home language	16.6%	33.4%	16.9%	20.8%	12.3%
[1]Review English words unfamiliar to ELL's before reading book	22.4%	22.6%	18.9%	24.4%	11.7%

[1]Indicates items that were designated as the "teacher-child verbal interaction items" and were included in the sub-composite of the classroom literacy environment for Research Question 5

Table 10. *Hierarchical Regression Model A for Variables Predicting PLS4 Expressive Communication Score (N = 62)*

	B	*SE B*	β	ΔR^2	Total R^2
Step 1				.042	.042
Gender	3.75	3.28	.15		
Age	.10	.10	.13		
Step 2				.112	.070
Gender	5.93	3.34	.23^{+}		
Age	.11	.09	.15		
HLE	24.78	11.59	.28*		
Step 3				.175	.063
Gender	5.74	3.25	.22^{+}		
Age	.16	.09	.21^{+}		
HLE	27.65	11.35	.31*		
CLE	-21.65	10.34	-.26*		
Step 4				.224	.049
Gender	-7.17	15.37	-.28		
Age	-.43	.45	-.58		
HLE	-22.13	30.70	-.25		
CLE	-22.43	10.96	-.27*		
HLE x Gender	21.80	24.08	.52		
HLE x Age	.94	.69	.90		
Step 5				.225	.001
Gender	-3.50	19.79	-.14		
Age	-.46	.53	-.62		
HLE	-18.40	35.85	-.21		
CLE	-25.36	30.60	-.31		
HLE x Gender	23.66	25.49	.56		
HLE x Age	.87	.78	.84		
CLE x Gender	-7.20	24.45	-.19		
CLE x Age	.12	.74	.13		

$^{+}p < .1$
*p<.05

Table 11. *Hierarchical Regression Model A for Variables Predicting PLS4 Auditory Comprehension Score (N = 62)*

	B	*SE B*	β	ΔR^2	Total R^2
Step 1				.036	.036
Gender	1.92	3.64	.07		
Age	-.15	.11	-.18		
Step 2				.127	.091
Gender	4.67	3.66	.17		
Age	-.13	.10	-.16		
HLE	31.30	12.70	.32*		
Step 3				.163	.036
Gender	4.52	3.62	.16		
Age	-.09	.10	-.11		
HLE	33.69	12.63	.34*		
CLE	-18.06	11.51	-.20		
Step 4				.170	.007
Gender	-.73	17.56	-.03		
Age	-.34	.52	-.42		
HLE	12.70	35.08	.13		
CLE	-18.34	12.52	-.20		
HLE x Gender	8.88	27.51	.19		
HLE x Age	.40	.78	.35		
Step 5				.172	.002
Gender	-1.22	22.60	-.04		
Age	-.45	.61	-.54		
HLE	18.25	40.95	.19		
CLE	-29.36	34.95	-.32		
HLE x Gender	7.69	29.17	.16		
HLE x Age	.29	.89	.25		
CLE x Gender	1.98	27.93	.05		
CLE x Age	.26	.84	.26		

$^{+}p < .1$
*p<.05

Table 12. *Hierarchical Regression Model A for Variables Predicting Book Knowledge (N = 156)*

	B	*SE B*	β	ΔR^2	Total R^2
Step 1				.034	.034
Gender	.25	.18	.11		
Age	.01	.01	.14		
Step 2				.078	.045
Gender	.27	.18	.12		
Age	.02	.01	.15^{+}		
HLE	1.45	.54	.21*		
Step 3				.086	.008
Gender	.28	.18	.13		
Age	.01	.01	.12		
HLE	1.56	.54	.23*		
CLE	.66	.58	.10		
Step 4				.091	.005
Gender	.98	.79	.44		
Age	.00	.04	.03		
HLE	1.33	3.00	.19		
CLE	.76	.59	.11		
HLE x Gender	-1.08	1.19	-.32		
HLE x Age	.01	.06	.13		
Step 5				.106	.014
Gender	1.49	1.23	.66		
Age	.06	.06	.63		
HLE	1.99	3.02	.29		
CLE	4.95	3.18	.71		
HLE x Gender	-1.05	1.19	-.31		
HLE x Age	.00	.06	.02		
CLE x Gender	-.73	1.29	-.23		
CLE x Age	-.08	.06	-.91		

$^{+}p < .1$
*$p < .05$

Table 13. *Hierarchical Regression Model A for Variables Predicting Book Interest (N = 157)*

	B	*SE B*	β	ΔR^2	Total R^2
Step 1				.040	.040
Gender	.49	.19	.20*		
Age	-.00	.01	-.02		
Step 2				.060	.019
Gender	.51	.19	.21*		
Age	-.00	.01	-.01		
HLE	1.03	.58	.14^{+}		
Step 3				.073	.013
Gender	.53	.19	.22*		
Age	-.01	.01	-.05		
HLE	1.18	.59	.16*		
CLE	.91	.63	.12		
Step 4				.078	.006
Gender	-.25	.85	-.10		
Age	.02	.05	.18		
HLE	2.44	3.24	.33		
CLE	.81	.64	.11		
HLE x Gender	1.18	1.28	.32		
HLE x Age	-.03	.06	-.31		
Step 5				.097	.018
Gender	-.05	1.32	-.02		
Age	.10	.07	.94		
HLE	3.22	3.26	.43		
CLE	6.38	3.41	.86^{+}		
HLE x Gender	1.27	1.28	.35		
HLE x Age	-.05	.06	-.43		
CLE x Gender	-.31	1.39	-.09		
CLE x Age	-.11	.07	-1.16		

$^{+}p < .1$
*p<.05

Table 14. *Hierarchical Regression Model A for Variables Predicting LAP-D Language Comprehension Score (N = 51)*

	B	SE B	β	ΔR^2	Total R^2
Step 1				.099	.099
Gender	18.67	8.22	.31*		
Age	-.12	.49	-.03		
Step 2				.140	.041
Gender	22.49	8.51	.38*		
Age	-.17	.49	-.05		
HLE	47.88	31.85	.21		
Step 3				.141	.000
Gender	22.44	8.61	.37*		
Age	-.16	.50	-.05		
HLE	47.73	32.22	.21		
CLE	-3.45	31.77	-.02		
Step 4				.158	.017
Gender	-19.28	45.05	-.32		
Age	.66	2.88	.19		
HLE	89.29	238.46	.40		
CLE	-11.54	33.87	-.05		
HLE x Gender	67.40	71.33	.69		
HLE x Age	-1.30	4.44	-.41		
Step 5				.211	.054
Gender	-45.97	61.19	-.77		
Age	-4.39	4.13	-1.22		
HLE	14.98	250.23	.07		
CLE	-382.91	227.93	-1.67^{+}		
HLE x Gender	68.03	71.99	.69		
HLE x Age	-.29	4.61	-.09		
CLE x Gender	34.04	74.17	.38		
CLE x Age	6.88	4.32	2.13		

$^{+}p < .1$
*$p < .05$

Table 15. *Hierarchical Regression Model A for Variables Predicting LAP-D Language Naming Score (N =51)*

	B	SE B	β	ΔR^2	Total R^2
Step 1				.141	.141
Gender	20.54	8.61	.32*		
Age	-.71	.52	-.18		
Step 2				.181	.040
Gender	24.56	8.90	.38*		
Age	-.76	.51	-.20		
HLE	50.36	33.32	.21		
Step 3				.192	.011
Gender	24.17	8.94	.38*		
Age	-.69	.52	-.18		
HLE	49.16	33.48	.21		
CLE	-26.69	33.01	-.11		
Step 4				.224	.032
Gender	-6.31	46.34	.10		
Age	3.23	2.97	.84		
HLE	370.84	245.27	1.54		
CLE	-22.85	34.83	-.09		
HLE x Gender	30.85	73.37	.29		
HLE x Age	-6.13	4.56	-1.80		
Step 5				.276	.052
Gender	-51.35	62.82	-.80		
Age	-1.45	4.24	-.38		
HLE	242.39	256.88	1.01		
CLE	-325.63	234.00	-1.33		
HLE x Gender	19.71	73.91	.19		
HLE x Age	-4.13	4.73	-1.21		
CLE x Gender	92.07	76.15	.96		
CLE x Age	5.18	4.44	1.50		

*$p < .05$

Table 16. *Hierarchical Regression Model A for Variables Predicting E-LAP Language Score (N = 20)*

	B	SE B	β	ΔR^2	Total R^2
Step 1				.797	.797
Gender	2.42	1.77	.15		
Age	.73	.09	.88*		
Step 2				.829	.032
Gender	2.83	1.69	.18		
Age	.69	.09	.83*		
HLE	10.20	5.91	.19		
Step 3				.830	.001
Gender	2.88	1.75	.18		
Age	.69	.10	.84*		
HLE	10.46	6.19	.19		
CLE	-1.20	4.99	-.03		
Step 4				.830	.001
Gender	3.41	9.94	.21		
Age	.61	.45	.74		
HLE	8.15	16.39	.15		
CLE	-.98	5.46	-.02		
HLE x Gender	-1.11	15.04	-.05		
HLE x Age	.13	.70	.12		
Step 5				.832	.001
Gender	1.63	12.29	.10		
Age	.49	.78	.59		
HLE	7.00	18.15	.13		
CLE	-3.49	14.20	-.08		
HLE x Gender	-5.32	24.21	-.22		
HLE x Age	.20	.79	.18		
CLE x Gender	6.08	23.64	.27		
CLE x Age	.12	.70	.13		

*p < .05

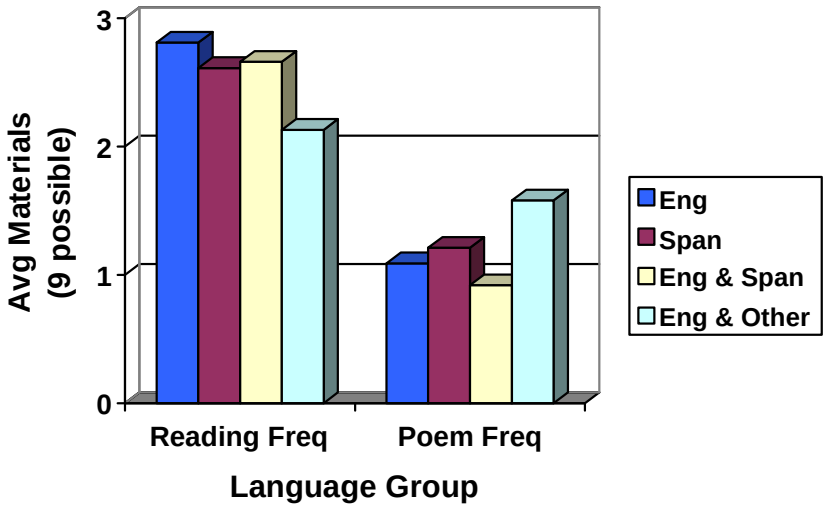

Figure 1. Reading and poem frequency broken down by language group.

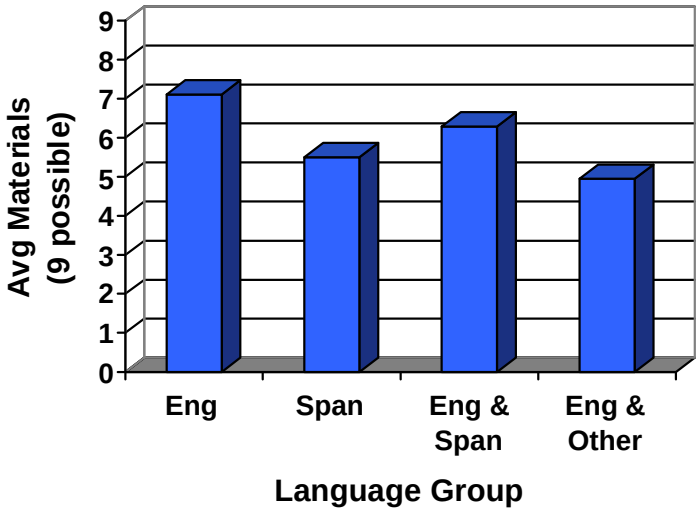

Figure 2. Average literacy materials available in the home broken down by language group.

REFERENCES

REFERENCES

Allington, R. L. (1984). Content, coverage, and contextual reading in reading groups. *Journal of Reading Behavior, 16,* 85-96.

Artiles, A. J., Rueda, R., Salazar, J. J., & Higareda, I. (2005). Within-group diversity in minority disproportionate representation: English language learners in urban school districts. *Council for Exceptional Children, 71,* 283-300.

August, D., & Hakuta, K. (1997). *Improving schooling for language-minority children: A research agenda.* Washington, DC: National Academy Press.

Baker, L., & Scher, D. (2002). Beginning readers' motivation for reading in relation to parental beliefs and home reading experiences. *Reading Psychology, 23,* 239-269.

Bandura, A. (1977). *Social learning theory*. Oxford, England: Prentice-Hall.

Bernhard, J. K., Cummins, J., Campoy, F. I., Ada, A. F., Winsler, A., & Bleiker, C. (2006). Identity texts and literacy development among preschool English language learners: Enhancing learning opportunities for children at risk of learning disabilities. *Teachers College Record, 108,* 2380-2405.

Bernhard, J. K., Winsler, A., Bleiker, C., Ginieniewicz, J., & Madigan, A. L. (2008). Read my story! Using the Early Authors Program to promote early literacy among diverse, urban preschool children in poverty. *Journal of Education for Students Placed at Risk, 13,* 76-105.

Bjorklund, D. F. (2005). *Children's thinking: Cognitive development and individual differences* (4th ed.). Belmont, CA: Thomson-Wadsworth.

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

Burgess, S. R., & Lonigan, C. J. (1998). Bidirectional relations of phonological sensitivity and prereading abilities: Evidence from a preschool sample. *Journal of Experimental Child Psychology, 70,* 117-141.

Butler, S. R., Marsh, H. W., Sheppard, M. J., & Sheppard, J. L. (1985). Seven-year longitudinal study of the early prediction of reading achievement. *Journal of Educational Psychology, 77,* 349-361.

Campbell, R. (1998). Looking at literacy learning in preschool settings. In R. Campbell (Ed.), *Facilitating preschool literacy* (pp. 70-83). Newark, DE: International Reading Association.

Connor, C. M., Son, S. H., Hindman, A. H., & Morrison, F. J. (2005). Teacher qualifications, classroom practices, family characteristics, and preschool experience: Complex effects on first graders' vocabulary and early reading outcomes. *Journal of School Psychology, 43*, 343-375.

Crain-Thoreson, C., & Dale, P. S. (1992). Do early talkers become early readers? Linguistic precocity, preschool language, and emergent literacy. *Developmental Psychology, 28,* 421-429.

Cunningham, A. E., & Stanovich, K. E. (1998). Early reading acquisition and its relation to reading experience and ability 10 years later. *Developmental Psychology, 33*, 934-935.

Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. *Educational Policy Analysis and Archives, 8*(1).

Dickinson, D., K., & Caswell, L. (2007). Building support for language and early literacy in preschool classrooms through in-service professional development: Effects of the Literacy Environment Enrichment Program (LEEP). *Early Childhood Research Quarterly, 22,* 243-260.

Edwards, P. A. (2007). Home literacy environments: What we know and what we need to know. In M. Pressley, A. K. Billman, K. H. Perry, K. E. Reffitt, & J. M. Reynolds (Eds.), *Shaping literacy achievement: Research we have, research we need* (pp. 42-76). New York: Guilford.

Elkind, D. (1976). *Child development and education: A Piagetian perspective*. New York: Oxford University Press.

Eppe, S. (2007). Emergent literacy skills in Spanish-English bilingual and English monolingual preschoolers: A cross-linguistic analysis of growth. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 67,* 5441.

Evans, M. A., Fox, M., Cremaso, L., & McKinnon, L. (2004). Beginning reading: The views of parents and teachers of young children. *Journal of Educational Psychology, 96,* 130-141.

Fleming, J. A. (2000). *An examination of inter-rater reliability of the Early Learning Accomplishment Profile.* Unpublished manuscript. Education. Baltimore: Johns Hopkins University.

Fuligni, A. S., & Brooks-Gunn, J. (2004). Early childhood intervention in family literacy programs. In B. H. Wasik (Ed.), *Handbook of family literacy* (pp. 117-136). Mahwah, NJ: Erlbaum.

Gall, M. D., Borg, W. R., & Joyce, P. (1996). *Educational research*. White Plains, NY: Longwood Publishers.

Glover, M. E., Preminger, J. L., & Sanford, A. R. (1988). *Early Learning Accomplishment Profile*. Chapel Hill Training-Outreach Program. Lewisville, NC: Kaplan Press.

Gonzalez, J. E., & Uhing, B. M. (2008). Home literacy environments and young Hispanic children's English and Spanish oral language: A communality analysis. *Journal of Early Intervention, 30,* 116-139.

Gosse, H. S., & Phillips, L. M. (2007). No gain in blame: Fostering collaborations between home and school. In Y. Goodman & P. Martens (Eds.), *Critical issues in early literacy: Research and pedagogy* (pp. 191-201). Mahwah, NJ: Erlbaum.

Hammer, C. S., & Miccio, A. W. (2006). Early language and reading development of bilingual preschoolers from low-income families. *Topics in Language Disorders, 26,* 322-337.

Hammer, C. S., Miccio, A. W., & Wagstaff, D. A. (2003). Home literacy experiences and their relationship to bilingual preschoolers' developing English literacy abilities: An initial investigation. *Language, Speech, and Hearing Services in Schools, 34*, 20-30.

Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children.* Baltimore, MD: Paul H. Brookes Publishing.

International Reading Association & the National Association for the Education of Young Children. (1998). Learning to read and write: Developmentally appropriate practices for young children. *Young Children, 53*, 30-46.

Janus, M., & Duku, E. (2007). The school entry gap: Socioeconomic, family, and health factors associated with children's school readiness to learn. *Early Education and Development, 18*, 375-403.

Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology, 80,* 437-447.

Klingner, J., & Artiles, A. J. (2006). English language learners struggling to learn to read: Emergent scholarship on linguistic differences and learning disabilities. *Journal of Learning Disabilities, 39,* 386-389.

Klingner, J. K., Artiles, A. J., & Barletta, L. M. (2006). English language learners who struggle with reading: Language acquisition or LD? *Journal of Learning Disabilities, 39,* 108-128.

Leseman, P. P., & de Jong, P. F. (1998). Home literacy: Opportunity, instruction, cooperation and social-emotional quality predicting early reading achievement. *Reading Research Quarterly, 33,* 294-318.

Lonigan, C. J. (2004). Emergent literacy skills and family literacy. In B. H. Wasik (Ed.), *Handbook of family literacy* (pp. 57-81). Mahwah, NJ: Erlbaum.

Lonigan, C. J., Burgess, S. R., & Anthony, J. L. (2000). Development of emergent literacy and early reading skills in preschool children: Evidence from a latent-variable longitudinal study. *Developmental Psychology, 36,* 596-613.

Lonigan, C. J., & Whitehurst, G. J. (1998). Relative efficacy of parent and teacher involvement in a shared-reading intervention for preschool children from low-income backgrounds. *Early Childhood Research Quarterly, 13,* 263-290.

Madden, N. A., Slavin, R., Karweit, N., Dolan, L., & Wasik, B. (1993). Success for all: Longitudinal effects of a restructuring program for inner-city elementary schools. *American Educational Research Journal, 30,* 123-148.

McArthur, (1993). *Language characteristics and schooling in the United States. A changing picture: 1979 and 1989.* (U.S. Department of Education Publication No. 93699). Washington DC: U.S. Government Printing Office.

McGee, G. W. (2004). Closing the achievement gap: Lessons from Illinois' golden spike high-poverty high-performing schools. *Journal of Education for Students Placed at Risk, 9,* 97-125.

Montie, J. E., Xiang, Z., & Schweinhart, L. J. (2006). Preschool experience in 10 countries: Cognitive and language performance at age 7. *Early Childhood Research Quarterly, 21,* 313-331.

Morrison, F. J., Smith, L., & Dow-Ehrensberger, M. (1995). Education and cognitive development: A natural experiment. *Developmental Psychology, 31,* 789-799.

Nehring, A. D., Nehring, E. F., Bruni, J. R., & Randolph, P. L. (1992). *Learning Accomplishment Profile Diagnostic.* Chapel Hill Training-Outreach Program. Lewisville, NC: Kaplan Press.

Nespeca, S. M. (1995). Parental involvement in emergent literacy skills of urban Head Start children. *Early Child Development and Care, Special Issue: Focus on Caregivers, 111,* 153-180.

Neuman, S. (1996). Children engaging in storybook reading: The influence of access to print resources, opportunity, and parental interaction. *Early Childhood Research Quarterly, 11,* 495-513.

Neuman, S. (1999). Books make a difference: A study of access to literacy. *Reading Research Quarterly, 34,* 286-311.

Neuman, S., & Roskos, K. (1993). Access to print for children of poverty: Differential effects of adult mediation and literacy-enriched play settings on environmental and functional print tasks. *American Educational Research Journal, 30,* 95-122.

Oka, E., & Paris, S. (1986). Patterns of motivation and reading skills in underachieving children. In S. Ceci (Ed.), *Handbook of cognitive, social, and neuropsychological aspects of learning disabilities* (Vol 2) (pp. 115-146). Hillsdale, NJ: Erlbaum.

Payne, A. C., Whitehurst, G. J., & Angell, A. L. (1994). The role of literacy environment in the language development of children from low-income families. *Early Childhood Research Quarterly, 9,* 427-440.

Perry, K. E., Donohue, K. M., & Weinstein, R. S. (2007). Teaching practices and the promotion of achievement and adjustment in first grade. *Journal of School Psychology, 45,* 269-292.

Proctor, B. D., & Dalaker, J. (2003). *Poverty in the United States: 2002*. Washington, DC: U.S. Census Bureau.

Raban, B. (1991). The role of schooling in initial literacy. *Educational and Child Psychology, 8,* 41-59.

Raikes, H., Luze, G., Brooks-Gunn, J., Raikes, H. A., Pan, B. A., Tamis-LeMonda, C. S., et al. (2006). Mother-child bookreading in low-income families: Correlates and outcomes during the first three years of life. *Child Development, 77,* 924-953.

Reynolds, B. (1998). To teach or not to teach reading in the preschool…that is the question. In R. Campbell (Ed.), *Facilitating preschool literacy* (pp.). Newark, DE: International Reading Association.

Risley, T. R., & Hart, B. (2006). Promoting early language development. In N. F. Watt, C. Ayoub, R. H. Bradley, J. E. Puma, & W. A. LeBoeuf (Eds.), *The crisis in youth mental health: Critical issues and effective programs*, Vol 4: Early intervention programs and policies (pp. 83-88). Westport, CT: Praeger Publishers/Greenwood Publishing.

Rush, K. L. (1999). Caregiver-child interactions and early literacy development of preschool children from low-income environments. *Topics in Early Childhood Special Education, 19,* 3-14.

Ryan, A. M. (2005). The effectiveness of the Manchester Even Start Program in improving literacy outcomes for preschool Latino students. *Journal of Research in Childhood Education, 20,* 15-26.

Saint-Laurent, L., & Giasson, J. (2005). Effects of a family literacy program adapting parental intervention to first graders' evolution of reading and writing abilities. *Journal of Early Childhood Literacy, 5,* 253-278.

Schwarzer, D. (2007). Monolingual teachers fostering students' native literacies. In Y. Goodman & P. Martens (Eds.), *Critical issues in early literacy: Research and pedagogy* (pp. 111-121). Mahwah, NJ: Erlbaum.

Schwarzer, D., Haywood, A., & Lorenzen, C. (2003). Fostering multiliteracy in a linguistically diverse classroom. *Language Arts, 80*, 453-460.

Senechal, M., & LeFevre, J. A. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. *Child Development, 73*, 445-460.

Share, D. L., Jorm, D. F., MacLean, R., & Mathews, R. (1984). Sources of individual differences in reading acquisition. *Journal of Educational Psychology, 76,* 1309-1324.

Snow, C. E., Barnes, W. S., Chandler, J., Goodman, I. F., & Hemphill, L. (1991). *Unfulfilled expectations: Home and school influences on literacy.* Cambridge, MA: Harvard University Press.

Spreadbury, J. (1998). Reading – it's a natural: Reading aloud to children in the home. In R. Campbell (Ed.), *Facilitating preschool literacy* (pp. 30-38). Newark, DE: International Reading Association.

Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21*, 360-407.

Tamis-LeMonda, C. S., Cristofaro, T. N., Rodriguez, E. T., & Bornstein, M. H. (2006). Early language devleopment: Social influences in the first years of life. In L. Balter & C. S. Tamis-LeMonda (Eds.), *Child psychology: A handbook of contemporary issues* (2nd ed., pp. 79-108). New York: Psychology Press.

Tizard, J., Schofield, W. N., & Hewison, J. (1982). Collaboration between teachers and parents in assisting children's reading. *British Journal of Educational Psychology, 52*, 1-15.

Umek, L. M., Podlesek, A., & Fekonja, U. (2005). Assessing the home literacy environment: Relationships to child language comprehension and expression. *European Journal of Psychological Assessment, 4*, 271-281.

Van Steensel, R. (2006). Relations between socio-cultural factors, the home literacy environment and children's literacy development in the first years of primary education. *Journal of Research in Reading, 29*, 367-382.

Weigel, D. J., Martin, S. S., & Bennett, K. K. (2006). Mother's literacy beliefs: Connections with the home literacy environment and pre-school children's literacy development. *Journal of Early Childhood Literacy, 6*, 191-211.

Weinberger, J. (1996). A longitudinal study of children's early literacy experiences at home and later literacy development at home and school. *Journal of Research in Reading, 19*, 14-24.

Weinberger, J. (1998). Young children's literacy experiences within the fabric of daily life. In R. Campbell (Ed.), *Facilitating preschool literacy* (pp. 39-50). Newark, DE: International Reading Association.

Whitehurst, G. J., & Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development, 69*, 848-872.

Whitmore, K. F. (2007). Bridging the worlds of home and school: Keeping children's identities whole in the classroom. In Y. Goodman & P. Martens (Eds.), *Critical issues in early literacy: Research and pedagogy* (pp. 177-189). Mahwah, NJ: Erlbaum.

Wright, S. P., Horn, S. P., & Sanders, W. L. (1997). Teacher and classroom context effects on student achievement: Implications for teacher evaluation. *Journal for Personnel Evaluation in Teaching, 11*, 57-67.

Wood, C. (2002). Parent-child pre-school activities can affect the development of literacy skills. *Journal of Research in Reading, 25*, 241-258.

Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (2002). *The Preschool Language Scale* (4th ed.). Toronto, Ontario, CA: The Psychological Corporation.

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