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The Instructional and Emotional Quality of Parent-Child Book Reading and Early Head Start Children's Learning Outcomes

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THE INSTRUCTIONAL AND EMOTIONAL QUALITY OF PARENT-CHILD BOOK READING AND EARLY HEAD START CHILDREN'S LEARNING OUTCOMES

By

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The primary objective of this study was to understand how two dimensions of parent-child book-reading quality – instructional and emotional –interact and relate to learning in a sample of linguistically and culturally diverse, low-income children. Participants included 81 parents and their children who took part in home-based Early Head Start programs in rural counties in the Midwest. Correlation and multiple regression analyses were used to test two hypotheses: (1) the instructional and emotional qualities of parent behavior during shared book reading interact and relate to infants' and toddlers' cognitive scores (as measured by the Bayley Scales of Infant Development Second Edition Mental Scale; BSDI-II; Bayley, 1993) and language scores (as measured by the Preschool Language Scale - IV and Preschool Language Scale - IV Spanish; PLS-IV and PLS-IV Spanish; Zimmerman, Steiner, & Pond, 2002a; Zimmerman, Steiner, & Pond, 2002b) at baseline; and (2) changes in instructional quality and baseline emotional quality of parent behavior during shared book reading interact and relate to changes in children's cognitive scores over time. Exploratory analyses examined if patterns of relationships varied for families who had different home languages (i.e., English, Spanish). Results demonstrated that instructional and emotional qualities of book reading and home language interacted to predict child cognitive and language scores, both concurrently and over eight months participation in EHS.

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Chapter 1

Introduction

In recent years, researchers, practitioners and policy makers have emphasized the importance of children entering school "ready to learn" and have addressed the stark differences in readiness among children of diverse backgrounds (e.g., Neuman, 2006; Rouse et al., 2005). Children who enter school with the requisite cognitive, language, and literacy skills have stronger kindergarten achievement and later academic success, while those who enter school with underdeveloped readiness skills are at risk for persisting school failure (Baydar et al., 1993; Blair, 2001; Duncan et al., 2007; La Paro & Pianta, 2000; Walker et al., 1994). Because entering school ready to learn is important for all children, there is great concern about variations in children's early experiences leading to differences in school readiness (e.g., Brooks-Gunn et al., 2007; National Center for Children in Poverty, 2006). Variations in school readiness skills are largely attributed to differences in children's overall living situations and life stressor experiences, and beyond those to contextual factors of their early childhood experiences including language and literacy opportunities and safe, emotionally nurturing relationships and attachments (Brooks-Gunn & Markman, 2005; Hart & Risley, 1995; Landry & Smith, 2006; Shonkoff & Phillips, 2000). Low-income children, such as those served by the federally-funded Early Head Start (EHS) program, may be at risk compared to their higher income counterparts because exposure to the stresses associated with poverty has the potential to compromise families' abilities to provide the consistent positive and stimulating experiences (both intellectual and emotional) that optimally

support children's development (Bradley et al., 1994; Brooks-Gunn & Duncan, 1997; McLoyd, 1990, 1997). Likewise, immigrant status may be related to risk factors. The Latino population, for example, is growing in the United States and many children of recent immigrants are at risk for school failure due to their minority status, language barriers, parental education and employment, and housing conditions (e.g., Brooks-Gunn & Markman, 2005; Farver et al., 2006; Raver & Knitzer, 2002). Parents from minority populations may also endorse values and beliefs about child development and education that are at odds with the educational approaches and formats primarily utilized in American schools; families' and schools' contrasting views can present challenges when children enter school and are expected to exhibit competencies that have not been emphasized as part of the home socialization experience.

In the context of concern for children's early development and school readiness, promoting literacy activities and the "curriculum of the home" (Walberg, 1984) is recognized as one pathway for promoting young children's school readiness, especially their cognitive, language and emergent literacy development (Bradley et al., 1988; Clarke-Stewart, 1973; Foster et al., 2005; Hill, 2001; Payne et al., 1994; Roberts et al., 2005; Weigel et al., 2006). Research indicates that early cognitive, language and literacy skills are highly predictive of school success (Adams, 1990; Lentz, 1988; Snow et al., 1998; Wagner et al., 1994), and parent behaviors in the home environment help set the stage for young children to acquire the skills and dispositions they will need as they move from early to middle childhood (de Jong & Leseman, 2001; Sénéchal & LeFevre, 2002; Zill & Resnick, 2006). One literacy activity that has shown promise and which is the focus of the current research study is reading books to children.

Research has shown book reading to be a valuable learning experience, not only in the preschool years but also in the infant/toddler period. Research has demonstrated that both *how often* (e.g., Bus et al., 1995; Ninio, 1983; Raikes et. al., 2006; Zill & Resnick) and *how well* (e.g., Bingham, 2007; Haden et al., 1996; Leseman & de Jong, 1998, 2001) parents and children read together are related to children's language and literacy outcomes. Frequency is usually measured by the number of times per day or per week that the parent reports reading to the child, while quality has been measured along several dimensions, including amount of labeling, turn-taking and questioning, level of cognitive demand, and emotional engagement. While the majority of book-reading research has focused on preschool aged children (3 - 5 years old), the importance of reading in the infant/toddler period is increasingly being emphasized (Fletcher & Reese, 2005) and explored, with both the frequency (e.g., DeBaryshe, 1993; Lyytinen et al., 1998; Raikes et al., 2006) and quality (e.g., Arnold et al. 1994; Whitehurst, et al. 1988) of book-reading relating to learning outcomes for children aged 2 and younger.

Understanding how book-reading behaviors relate to the learning outcomes is especially important for young, low-income children, including those from Spanish-speaking families, since these children may be exposed to stressors that can compromise their development (Shonkoff & Phillips, 2000). Nonetheless, few studies have focused on how the book-reading behaviors of these at-risk families relate to learning outcomes of infants and toddlers. One exception is a landmark study conducted by Raikes et al. (2006). Utilizing data collected as part of the EHS evaluation project, Raikes et al. found concurrent and cumulative relationships between how often parents and children engaged in book reading and children's cognitive and language skills during the first

years of life. Furthermore, the patterns of significant relationships between book-reading frequency and child outcomes differed for English-speaking and Spanish-speaking families with respect to the time points at which significant relationships between book-reading frequency and child outcomes were found. Raikes et al. did not, however, investigate how the *quality* of book reading relates to EHS children's learning outcomes. Research indicates that quality of book reading may be as important as its frequency for children's learning (e.g., Mol et al., 2008).

The purpose of the current study was to examine the extent to which two dimensions of book-reading quality - instructional[1] and emotional – related and interacted as they related to EHS children's cognitive and language skills and to changes in children's cognitive skills[2] over 8 months[3]. Furthermore, this study included an exploration of whether there were unique patterns of relationships for families whose primary home languages differed (i.e. English, Spanish). Correlation and multiple regression analyses were conducted to evaluate the contributions of book-reading qualities to child learning and the contributions of baseline and changes in book-reading

[1] Note that the terms Instructional Quality and use of Extra-Textual Talk are used interchangeably; this measure of Instructional Quality is further described in the literature review and methods sections

[2] This study was originally designed to examine change in children's language skills over time in addition to change in their cognitive skills; however, some children were assessed using the Spanish version of the language assessment at the first assessment visit and the English version of the language assessment at the subsequent assessment visit. Computing change scores with the two different versions of the assessment was considered inappropriate, as further described in the Methods section.

[3] While data collection for the study protocol involved assessing children at baseline and 8 months post-baseline, there was variation in the actual number of months that lapsed between the two assessments as described in the Methods section.

qualities to changes in child learning over 8 months. The specific goals for this study are described below:

1. To examine concurrent relationships between book-reading qualities and child learning at baseline, and to explore whether these relationships differed for families who spoke English as their home language and families who spoke Spanish as their home language, by:
    a. Examining the contribution of (a) Extra-Textual Talk, (b) Emotional Quality, and (c) the interaction between Extra-Textual Talk and Emotional Quality to child cognitive, expressive communication, and auditory comprehension scores at baseline.
    b. Exploring the contribution of the interactions between (a) Extra-Textual Talk and Home Language, (b) Emotional Quality and Home Language, and (c) Extra-Textual Talk, Emotional Quality, and Home Language to child cognitive, expressive communication, and auditory comprehension scores at baseline.
2. To examine relationships between book-reading qualities and changes in book-reading qualities to changes in child learning by:
    a. Examining the contribution of (a) change in Extra-Textual Talk, (b) baseline Emotional Quality, and (c) the interaction between change in Extra-Textual Talk and baseline Emotional Quality to change in child cognitive scores.
    b. Exploring if the contributions of the interactions between (a) change in Extra-Textual Talk and Home Language, (b) baseline Emotional Quality

and Home Language, and (c) change in Extra-Textual Talk, baseline Emotional Quality, and Home Language to child change in child cognitive scores.

Review of the Literature

The purpose of this study was to examine how instructional and emotional qualities of book-reading related and interacted as they related to child learning in a linguistically and culturally diverse sample of low-income infants and toddlers participating in Early Head Start. Furthermore, the study was designed to explore if the relationships between book-reading qualities and children's learning differed for children whose home language was English and families whose home language was Spanish. This chapter provides a review of literature related to early parent-child book reading and includes a discussion of linguistic and cultural group considerations.

The Home Environment and Parenting Behaviors and Children's Early Learning

Children's early school readiness, including cognitive, language, and literacy skills, are critical for their early school achievement and later academic success (Neuman, 2006; Rouse et al., 2005). There is strong consensus among researchers, practitioners, and policy-makers validating the importance of parents as sources of the early experiences that support children's development (e.g., Bronfenbrenner, 2005; Henderson & Mapp, 2002; Shonkoff & Phillips, 2000; Taylor et al., 2004). Parents contribute to their children's development of school readiness skills in part through the quality of home environment and parent behaviors.

The quality of the home environment is considered an important predictor of children's school readiness skills, including emergent literacy competencies. The home

environment is believed to be especially important for the development of these skills because children's earliest interactions with language and literacy occur in the contexts of the family and the home (Purcell-Gates, 1996). Such opportunities could include becoming familiar with literacy materials, observing family members engaging in literacy activities, exploring literate behaviors independently, engaging in shared reading and writing activities with others, and learning from instructional strategies used by family members in joint literacy activities (DeBaryshe et al., 2000). Leichter (1984) described families as "environments for literacy" (p. 39), and further discussed three categories of the home environment that condition and set the stage for children's experiences with literacy. These include (a) the physical environment, for example economic and educational resources and types of visual stimulation such as books, (b) interpersonal interactions, for example interactions with parents, siblings and other individuals in the household who provide corrections, explanations, and other feedback as the child experiments with literacy, and (c) the emotional and motivational climates, for example the emotional relationships within the home, parental recollections of their own literacy experiences, and the aspirations of the family members.

Parental behavior is a component of the home environment and has long been known to be associated with young children's developmental outcomes, including cognitive and language skills (NICHD, 2002; Pan et al., 2005). Two dimensions of parental behavior empirically demonstrated to promote young children's development include instructional behavior (i.e. offering intellectual learning opportunities) (Bradley et al., 1994; Corwyn & Bradley, 1999) and emotional behavior (i.e., providing emotionally nurturing relationships; Clarke-Stewart, 1973; Parker et al., 1999). Low

income children, such as those served by Head Start and Early Head Start, are at particular risk to enter school with underdeveloped readiness skills; this is due in part to exposure to the stresses associated with poverty that have the potential to compromise families' abilities to provide the consistent, positive intellectual and emotional experiences that optimally support children's development (Bradley et al., 1994; Brooks-Gunn & Duncan, 1997; McLoyd, 1990, 1997).

Parents are important as conveyers of instruction and providers of cognitively stimulating experiences for their children (Bradley et al., 1994; Corwyn & Bradley, 1999). Parents who frequently engage in responsive language and literacy interactions with their children, and who provide a rich curriculum of the home (Walberg, 1984) characterized by opportunities for learning through activities including shared book reading, constructive play, and exploration, have children who display higher language, literacy, and cognitive skills in the preschool and primary years (e.g., Bradley et al., 1988; Foster et al., 2005; Hill, 2001; Huttenlocher et al., 1991; Payne et al., 1994; Sénéchal & LeFevre, 2002; Tamis-LeMonda & Bornstein, 2002; Weigel et al., 2006).

Parents are also important as providers of emotionally nurturing relationships for their children (Clarke-Stewart, 1973; Parker et al., 1999). A warm and sensitive parent-child relationship that includes encouragement and support is understood to lay the foundation for secure behavior and exploration (Hirch-Pasek & Burchinal, 2006; Parker et al, 1999; Shonkoff & Phillips, 2000). Furthermore, parental interactions that include displays of affection, physical proximity, contingent positive reinforcement, and sensitivity have repeatedly been related to children's cognitive growth over time (Bornstein & Tamis-LeMonda, 1989; Burchinal et al., 1997; Landry et al., 2001;

Morrison & Cooney, 2002, as cited in Hirsh-Pasek & Burchinal, 2006). Warm parent-child relationships and parental nurturance are recognized as contributing to children's literacy development (Merlo et al., 2007; Pianta, 2004), and enhancing early parent-child interaction quality is viewed as an effective approach for promoting children's literacy development (Brooks-Gunn et al., 2000).

Emotional relationships furthermore play a role in parent-child interactions, including in the context of book reading. In a series of ground-breaking and well-known studies, Bus, van IJzendoorn, and colleagues (Bus et al, 1997; Bus & van IJzendoorn, 1988, 1992, 1995, 1997) used an attachment framework (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969) to examine how the quality of the parent-child relationship, as indicated by attachment status, relates to how often and how well parents and children read together. Bus, van IJzendoorn and colleagues used mother-child attachment security reflecting parental warmth, sensitivity, and responsiveness, as an indicator of the quality of the mother-child relationship. They theorized that based on parent-child relationship history, children who have a secure attachment relationship with a parent are more willing to explore unfamiliar aspects of their environment, such as written material, and to trust their caregiver as a teacher, in comparison to their counterparts who do not have a secure attachment relationship with a parent. Bus, van IJzendoorn, and colleagues also theorized that parents of securely attached children would be more effective at engaging and instructing their children during book-reading. Several studies showed that secure attachment status related to more frequent and higher quality book-reading interactions (Bus et al., 1997; Bus & van IJzendoorn, 1988, 1992, 1995, 1997). The foregoing line of research demonstrates the importance of the affective dimension of the parent-child

relationship for understanding parent-child book-reading interactions and provides a theoretical basis for the proposed study which includes a dual focus on instructional and emotional dimensions of book sharing.

Shared Book Reading

Shared book-reading (also referred to as book sharing) between children and adults, including parents, is widely viewed as important for promoting young children's cognitive, language and literacy development (e.g., Adams, 1990; Bus et al., 1995; Snow & Goldfield, 1983; Teale, 1984). This activity has received positive attention not only among researchers and scholars, but also in the public sphere for its potential to help provide a foundation for children's academic growth (Bowman et al., 2001; Snow et al., 1998). Though the book reading context is certainly not the only one in which children have the opportunity to gain valuable experiences that may support cognitive, language, and literacy development, several salient characteristics of this activity are recognized as important (e.g., Dickinson & Tabors, 2001). Early experience with books, for instance, provides exposure to print; this may allow children to become familiar with concepts and conventions of print (e.g., recognizing letters; understanding that letters, words, and text have meaning) and help them gain knowledge about how books "work" (e.g., that books have an author; that books have a beginning, middle, and end) . Additionally, warm, affectionate interactions with adults in the context of shared book-reading may promote in children a love of books and motivation to read. Shared book reading may also help build children's vocabularies by offering exposure to rare or novel words, such as igloo and elephant, which are not typically part of everyday conversations but that are included

in books. The book-reading context may also provide a unique opportunity to engage in cognitively demanding, complex discussions that parallel the academic demands that will be made of children when they enter school; this may be especially true when children and adults repeatedly read the same books and move into more in depth conversations that include references to past experiences, and discussions that involve making predictions and drawing inferences.

Considering shared book reading from a Vygotskian perspective further illustrates the potential benefits of this activity. Vygotsky (1978) emphasized the critical role of social interaction, especially the language exchanged during social interaction, for children's cognitive development. He explained that in the case of learning new words, hearing a novel word might encourage a child to discover the meaning of that word through the help of a more competent partner. This social developmental framework is often adopted when analyzing and interpreting shared book reading interactions (Fletcher & Reese, 2005). Book reading is considered to provide an ideal context for a child to learn new words with the assistance of an adult because, unlike other activities such as free play that require children to extract new words from the stream of ongoing activities, the focus of the book reading activity is on the story and pictures. This activity therefore easily facilitates joint attention on new words and concepts that has the potential to support word learning. It has been hypothesized that engaging in early and frequent shared book reading may enable the adult to gain sensitivity in estimating the child's language-learning potential (Fletcher & Reese, 2005). This is important because in order for the child to maximize his or her potential for language learning, teaching must be focused within the child's zone of proximal development, which in the case of language

learning is the distance between the child's current language levels and his or her potential language levels that can be achieved with the assistance of a more skilled partner.

The majority of shared book reading research has focused on preschool-aged children (i.e., aged 3-5) rather than on infants and toddlers; however, this activity is contended to be important for the youngest of children's development as well (e.g., Fletcher & Reese, 2005; Ninio, 1983; Snow & Goldfield, 1983). As described above, book reading provides exposure to novel vocabulary and concepts rarely used in everyday conversations; the opportunities afforded by the book reading context may be especially important for children under the age of 3 as this period is marked by rapid language learning (DeTemple & Snow, 2003). Research indeed suggests a link between child age at the onset of shared book reading and language skills, with children who are read to from an earlier age demonstrating more advanced language skills (DeBaryshe, 1993; Payne et al., 1994).

Despite widespread acceptance that book reading is a valuable experience, the literature focused on this topic reveals inconsistencies and contradictions in the findings regarding the link between book reading and young children's competencies (Bus et al., 1995; Scarborough & Dobrich, 1994). While some studies show strong links between book-reading behaviors and children's learning outcomes, other studies find weaker or no relationships. In a controversial review of joint book reading literature entitled "On the Efficacy of Reading to Preschoolers," Scarborough and Dobrich (1994) questioned the relative importance of shared book reading for children's learning outcomes. This review elicited critical responses from other researchers, for example, from Dunning and

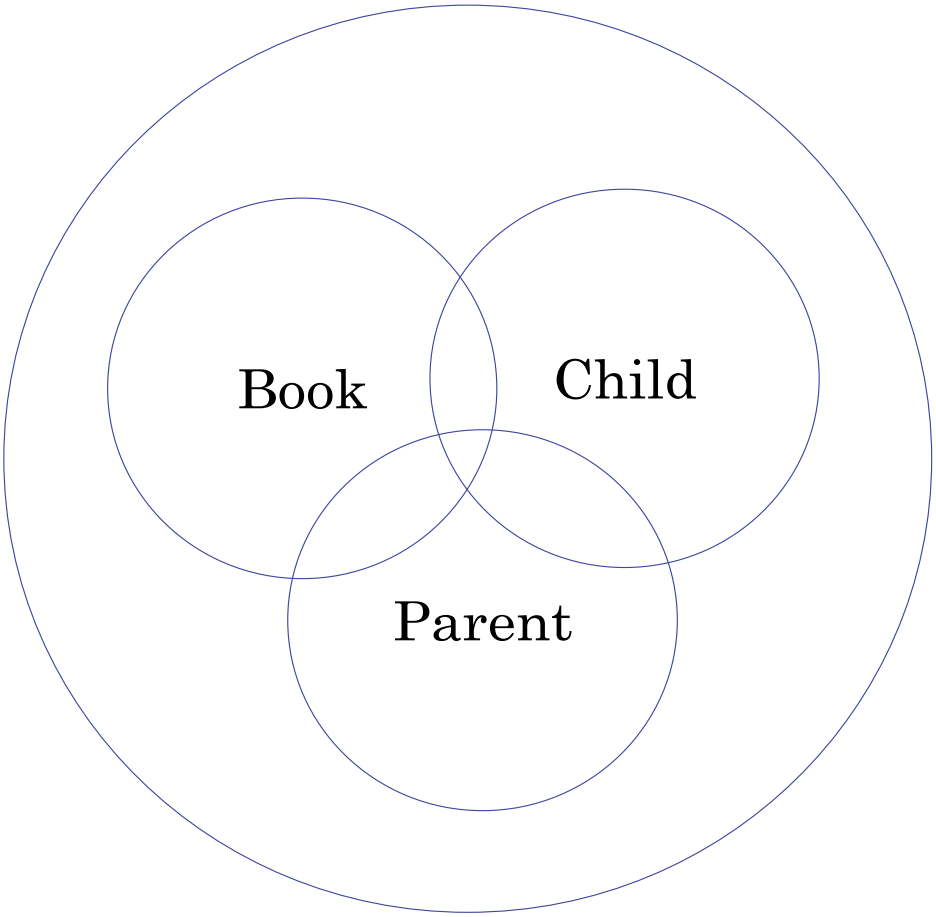
colleagues, who claimed that such conclusions were premature in light of the complexity of the topic and literature and the need for more sophisticated methods for measuring book reading behaviors (Dunning et al. 1994). The resulting message of this dialogue has been that researchers need to, as Hindman and colleagues (2008) later termed it, better "untangle" the associations between shared book reading and child learning outcomes. There has been increased attention to the complexity of the nature of these relationships with recognition that the link between book reading practices and children's developmental outcomes may be nuanced by numerous factors. These could include variations in: the populations examined, characteristics of the child, the book-sharing context (e.g. at home with a parent versus at school with a teacher), the outcomes evaluated and instruments used to measure the outcomes, and the types of adult and/or child behaviors observed (e.g., frequency versus quality of book reading) (Hindman et al., 2008). The current study focused on examining a specific aspect of book-reading behaviors – the quality of shared book reading.

Quality of Shared Book Reading

Fletcher and Reese (2005) describe every parent-child shared book-reading interaction as consisting of three components: the parent, the child, and the book. Each of these three components has its own set of characteristics that may influence the book reading interaction. For example, the interaction may be influenced by parent characteristics such as educational level, socio-economic and cultural background, gender, and relationship to the child; child characteristics such as age and developmental level, attention and interest in the activity, and attachment relationship with the parent; and book characteristics such as type (picture book, informational text, etc.), complexity,

and familiarity to the parent and child. Fletcher and Reese conceptualized book-reading quality as being the "match" between the adult, child, and book (see Figure 1).

Figure 1. The three components of book sharing (adapted from Fletcher and Reese, 2005)



While each component (i.e., parent, child, and book) of the book-sharing interaction is considered important, previous research has most commonly focused on parent behaviors during shared reading. These may be in part because (a) parent behaviors are widely recognized as important for child learning, (b) parents are generally viewed as guiding their children's participation in book-reading interactions, and (c) parent behaviors may be targeted through intervention in order to improve book-sharing

quality and enhance child learning. The current study focused primarily on examining the quality of parent book-reading behaviors.

There is immense diversity in the styles that parents adopt when sharing books with children. Previous research describes the behaviors in which parents and children engage during shared book reading and explores different qualitative characteristics of those behaviors. Two broad dimensions of quality that have been explored are the instructional and emotional qualities.

Instructional quality of book reading. Parents use a variety of instructional behaviors (e.g., attention-getting strategies, pointing to pictures, labeling, questioning, offering additional information) when reading with their children, including with their infants and toddlers (DeLoache & DeMendoza, 1987; Murphy, 1978; see Fletcher & Reese, 2005 for a review). There is a range of book reading styles that parents may adopt as they share books with their children. In previous studies, measures of instructional quality of book reading have largely focused on the use of extra-textual talk. Extra-textual talk includes conversation that moves beyond the strict reading of the text and takes off in directions of interest to the child or parent. The amount extra-textual talk as well as the cognitive demand of that talk (i.e., assessing whether talk moves beyond simple labeling to higher order thinking including reasoning and making predictions about what is being read; Leseman & de Jong, 1998, 2001) are recognized as especially important components of instructional quality.

Researchers have described great variations in parents' use of extra-textual talk during book reading (with variations in tendencies observed among parents from different socio-economic and cultural groups as will be further discussed below) and

found differential links between these styles of shared reading and children's learning outcomes. In a study of middle-income American mothers of European descent and their preschool-aged children, Haden et al. (1996) described three styles of maternal book reading; mothers were categorized as (a) describers, (b) collaborators, or (c) comprehenders based on their book-reading behaviors. Describers focused primarily on describing and elaborating during book sharing; collaborators elicited their children's participation in the telling of story; and comprehenders asked their children to make predictions about what would happen in the story and draw inferences about why events occurred. Both collaborator and comprehender styles are considered interactive and the latter style is also considered most cognitively demanding. After controlling for children's initial language skills, the researchers found that (a) use of comprehender style was more positively linked to children's higher vocabulary and better story comprehension skills two and one-half years later than use of a describer style, and (b) use of a collaborator style was more positively linked to children's better decoding skills two and one-half years later than use of a describer style. These results indicated that mothers' use of more interactive and/or more cognitively challenging styles of shared book-reading was related to more favorable gains in children's language and literacy skills. Additional research has also demonstrated that parent behavior during book reading that encourages children's intellectually active participation in the activity, as opposed to passive listening, and/or places greater cognitive demand on children, is associated with children's better learning outcomes (Arnold et al., 1994; Bingham, 2007; Leseman & de Jong, 1998, 2001; Sénéchal, et al. 1995). An interactive style of book-reading that includes a question-and-answer format may be effective in preparing

children for school because the demands of interactive book-reading parallel the cognitive style that dominates North American schooling (Heath, 1982). Therefore, more interactive and/or more highly cognitively demanding book-reading interactions are generally considered to be of higher instructional quality.

Research focused on assessing the effectiveness of intervention approaches designed to support child learning through book-sharing has demonstrated that teaching parents specific reading strategies can have positive effects. Whitehurst and colleagues (e.g., Arnold et al., 1994; Whitehurst et al., 1988) have demonstrated that training adults, including parents, to use specific highly interactive book-reading strategies ("dialogic reading"), can lead to significant increases in children's language learning outcomes.

Family demographic characteristics related to instructional quality and children's learning. Variations are found in how parent-child dyads interact with books, including the amount and kind of extra-textual talk in which dyads engage (e.g., Haden et al., 1996; Reese et al., 2003). Some research indicates that variations in qualitative characteristics of book reading may be related to family background factors, including socioeconomic status (e.g., Heath, 1982) and culture (e.g., Hammer et al., 2005; McNaughton, 1995; Melzi & Capse, 2005). Socioeconomically disadvantaged parents and parents from some cultural groups, for example, have been found to use book-reading styles and strategies that differ from those used by middle-income Americans of European descent; book reading for these families may be less interactive and/or considered less cognitively demanding (McNaughton, 1995; Ninio, 1980; Heath, 1982).

It is not surprising that there is variation in book reading and other literacy practices across cultures. There is great diversity among cultural groups regarding values

and beliefs concerning communication styles, parent-child interactions, and early literacy socialization (van Kleeck, 2006). Middle-income Americans of European descent (referred to here as "mainstream culture" families because this is the population on which much book reading research has focused) tend to endorse a particular set of values and beliefs; these values and beliefs may differ drastically from those more commonly endorsed by members of other socioeconomic and cultural groups. The differences in values and beliefs are further reflected in variations in literacy socialization practices observed among socioeconomically and culturally diverse families. Values and beliefs associated with book-reading practices that are commonly observed among families from "mainstream culture" include: (a) parents share books with their very young children because they view babies as intentional communication partners, (b) parents and children engage in one-on-one interactions during book sharing because dyadic interaction is viewed as the norm and the parent is the primary caregiver, (c) book sharing occurs frequently because literacy skills are highly valued, (d) parents make book sharing entertaining because they want learning to be fun, (e) parents and children discuss books because adults believe they should explain activities verbally as they unfold, (f) parents encourage child participation because children's talkativeness is valued, (g) parents prompt children with known information questions and cognitively challenging questions that increase in difficulty over time to encourage children to verbally display what they know and to practice school-like discourse involving higher level thinking, and (h) parents respond to their children's lead because they value children's verbal assertiveness, talkativeness, and ability to initiate conversation and direct topics with

adults. Parents from other socioeconomic and cultural groups often have different values, beliefs, and associated literacy socialization practices.

Styles of book reading that require active child participation and elicit cognitively demanding conversation are generally viewed as most effective at supporting children's learning. Interventions designed to increase parents' use of more interactive and cognitively challenging reading strategies (i.e., dialogic reading) have indeed been found to effectively promote preschoolers' and toddlers' language and emergent literacy learning in some populations, including low-income children participating in Head Start (e.g., Whitehurst, Arnold et al., 1994; Whitehurst, Epstein et al. 1994; Whitehurst, et al., 1999). However, recent research focused on Latino families challenges the generalizability of the assumption that highly interactive book-sharing approaches are the most effective for supporting child learning for all families.

Book-reading research with Latino families. Research focused on Latino families has demonstrated diversity in how parents and children from this heterogeneous group interact around books (e.g., Caspe & Melzi, 2008; Hammer et al., 2005). Nonetheless, there is a general tendency for these families to engage in book sharing styles that include limited verbal exchange between the parent and child. This has been observed in both low and middle class Latino parents, as in a study of Mexican American mothers (Rodriquez et al., 2009). The book sharing approaches commonly adopted by Latino parents place distance between the "narrator" and the "audience" meaning that one individual (the "expert") narrates the story while the other individual (the "novice") listens (Caspe & Melzi, 2008). While the parent is commonly the expert and the child the novice, these roles may be reversed, depending on the parents' expectations of the child's

understanding and capabilities in that particular situation; however, a distance remains between the narrator and audience. This type of book sharing style differs from the question-answer, co-construction format commonly used by middle-income American parents of European descent. Differences between the book sharing practices and styles commonly adopted by members of these two cultural groups closely align with more global differences in the communicative styles, and parenting beliefs, values and literacy socialization practices (Caspe & Melzi, 2008; van Kleeck, 2006).

Recent research by Caspe (2009) explored the relationships between maternal book sharing styles and subsequent language and literacy development of Latino Head Start preschool children. As part of the study, parent-child dyads were audio-taped as they shared a wordless children's picture book, and children's emergent literacy skills were assessed six months later. Three main styles of book-sharing, (a) storybuilder-labelers, (b) storytellers, and (c) abridged-storytellers were observed. Storybuilder-labelers spent more time requesting narrative information (i.e., information used in the telling of the story, including labels, descriptions, and evaluations) from their children, thereby "building" or co-constructing the story with their children. This style most closely resembles the highly interactive book-sharing approach frequently observed among middle-income American parents of European descent and commonly considered effective in supporting children's learning. Storytellers spent more time providing narrative information, thus "telling" and controlling the story. Abridged-storytellers provided a moderate amount of information to their children, requested the least amount of narrative information, and also requested and provided the least amount of non-narrative information (i.e. information that moved outside and/or beyond the telling of the

story; included confirmations, corrections, clarifications and responses to the partner's previous utterance, definitions, counting, and talking about the process of book sharing, and making connections between the child's experiences and the story) of the three styles; consequently, their stories were more concise.

Results of Caspe's (2009) study revealed differential relationships between book-sharing styles and children's emergent literacy skills. Specifically, Caspe found: (a) the storytelling style was more positively associated with children's print-related literacy skills than the storybuilder-labeler style, (b) the abridged-storytelling style paired with more years of Head Start was associated with some of the highest print-related literacy skills in the sample, and (c) the storybuilder-labeling style was associated with children using more evaluations in their own narratives. Importantly, the two book sharing styles that place more distance between the reader and the audience were found to be most predictive of higher print-related literacy skills. These results are in contrast with previous research findings and assumptions that more interactive book sharing (that removes the distance between the reader and the audience) best supports the development of children's skills. These findings underscore the complexity of the relationships between parent approaches to book sharing and young children's learning and suggest that "what works best" may vary for cultural and linguistic (and perhaps socioeconomic) groups. There is a lack of research focused on these relationships for Latino families with infants and toddlers, including those served by EHS. Better understanding how instructional qualities of book sharing differentially relate to young children's learning outcomes in diverse populations has important implications for understanding book reading practices and for designing and implementing culturally sensitive book reading

interventions that support children's development. The current study explored these relationships.

Emotional quality of book reading. While relatively few studies have examined the emotional quality of parent-child book-reading interactions, this nurturing factor has been found to relate to preschool-aged children's language and emergent literacy outcomes (e.g., Bingham, 2007; Leseman & de Jong, 1998, 2001; Sonnenschein & Munsterman, 2002). The emotional quality of book-reading interactions is characterized by such parental behaviors as: (a) warmth, sensitivity, and responsiveness to child's cues and interests; (b) parents' use of strategies to increase the children's enjoyment of the activity, including reading with expression and excitement; (c) a high level of parental involvement and enjoyment evidenced by smiling, laughing, and relevant talk; and (d) physical contact with the child (Bingham, 2007; Leseman & de Jong, 1998, 2001; Sonnenschein & Munsterman, 2002). While emotional quality of book reading has been linked to preschool-aged children's learning outcomes, there is a lack of research focused specifically on how the emotional quality of parent-child book-reading relates to the learning of infants and toddlers, including those from at-risk populations.

An interaction between instructional and emotional quality? As discussed above, both the instructional and emotional qualities of book-reading have been found to relate to children's learning outcomes. Furthermore, research indicates that the two dimensions of quality are positively related to one another (Leseman & De Jong, 1998). The affective quality of the parent-child relationship (not specific to book-reading) has also been found to relate to level and quality of instructional verbal interactions during book reading (e.g., Bus & van IJzendoorn, 1997). There is growing recognition that both

instructional and emotional qualities of parent behaviors in the context of book reading may be important for children's learning. However, one question that has not been addressed is if these two dimensions of book reading quality (i.e., instructional and emotional) interact as they relate to young children's learning outcomes, concurrently or over time. It seems possible that pairing instructional quality with different levels of emotional quality might influence how teaching relates to children's learning. Specifically, instructional behaviors provided in the context of emotionally warm and engaging book reading may be more effective than the same instructional behaviors provided in a negative, harsh, and un-engaging atmosphere. Understanding such interactions as they relate to children's outcomes could have important scientific and practical applications. Finding an interaction between instructional and emotional qualities as they relate to child learning (concurrently and/or over time) implies a need for book reading interventions to include a strong dual focus on both instructional and emotional behaviors. The current study was concerned with better understanding the relationships between book-reading qualities (and interactions between book-reading qualities) and child learning concurrently and over time. Furthermore, this study explored whether there were variations in the patterns of these relationships for two home language sub-groups (i.e., English, Spanish; home language is used here as a proxy for cultural group).

Summary

Low income children are at risk for entering school without requisite skills and are more likely than their higher income counterparts to experience negative school outcomes. The experiences offered through the home environment and parental

behaviors, including instructional and emotional behaviors, are recognized as important for children's school readiness skill development. One activity that has been recognized as particularly important for children's early learning and which is the subject of the current study is shared book reading. Since parents' instructional and emotional behaviors are in a general sense known to relate to children's developmental outcomes, it is not surprising that research which has examined instructional and emotional parent behavior in the specific context of joint book reading points to the importance of these quality dimensions for supporting young children's learning through the reading of books (Bingham, 2007; Leseman & de Jong, 1998, 2001; Sonnenschein & Munsterman, 2002). However, less is known about the links between book- reading quality dimensions and infants' and toddlers' learning outcomes than preschoolers' outcomes. This is especially true of low-income children under the age of three, such as the children who participate in EHS, and children whose primary home language is Spanish. Furthermore, there is a lack of research which has examined whether the instructional and emotional qualities of book reading interact as they relate to children's learning outcomes; nonetheless, differential links between instructional behaviors and children's learning outcomes might be expected when this instructional behavior is paired with higher quality emotional behaviors (e.g., warmth, sensitivity, attempts to engage the child) versus low quality emotional behaviors (e.g., harshness, monotonous and un-engaging reading). The current study examined these various relationships in a sample of EHS parents and their infants and toddlers from the rural Midwest that included both families who spoke English as their home language and families who spoke Spanish as their home language.

Research Goals

The current study examined the extent to which two dimensions of parent behavior during shared book reading - instructional (i.e., use of extra-textual talk) and emotional –interacted and related to EHS children's cognitive and language skills and to changes in children's cognitive skills over 8 months of EHS services. Furthermore, this study explored whether or not patterns of relationships differed for families that spoke English as their home language and Spanish as their home language. The conceptual model that guides this study is presented in Figure 2. The specific goals of the study are described below:

1. To examine concurrent relationships between parents' book-reading qualities and their children's learning at baseline, and to explore if these relationships differed for families who spoke English as their home language and Spanish as their home language, by:
    a. Examining the contribution of (a) Extra-Textual Talk, (b) Emotional Quality, and (c) the interaction between Extra-Textual Talk and emotional quality to child cognitive, expressive communication, and auditory comprehension scores at baseline.

       Hypothesis: Extra-Textual Talk and Emotional Quality will predict children's cognitive, expressive communication, and auditory comprehension scores when entered into models individually (with control variables). Furthermore, an interaction between Extra-Textual Talk and Emotional Quality is hypothesized; pairing high Extra-Textual Talk with high Emotional Quality is expected to relate to more positive child

outcomes than pairing high Extra-Textual Talk with low Emotional Quality. In the latter case, there is expected to be a weak or no relationship between Extra-Textual Talk and child learning.

b. Exploring the contribution of the interactions between (a) Extra-Textual Talk and Home Language, (b) Emotional Quality and Home Language, and (c) Extra-Textual Talk, Emotional Quality, and Home Language to child cognitive, expressive communication, and auditory comprehension scores at baseline.

These analyses were exploratory and no specific hypotheses were made.

2. To examine relationships between parents' book-reading qualities, and changes in their book-reading qualities to changes in their children's learning by:

   a. Examining the contribution of (a) change in Extra-textual Talk, (b) baseline Emotional Quality, and (c) the interaction between change in Extra-Textual Talk and baseline Emotional Quality to change in child cognitive scores.

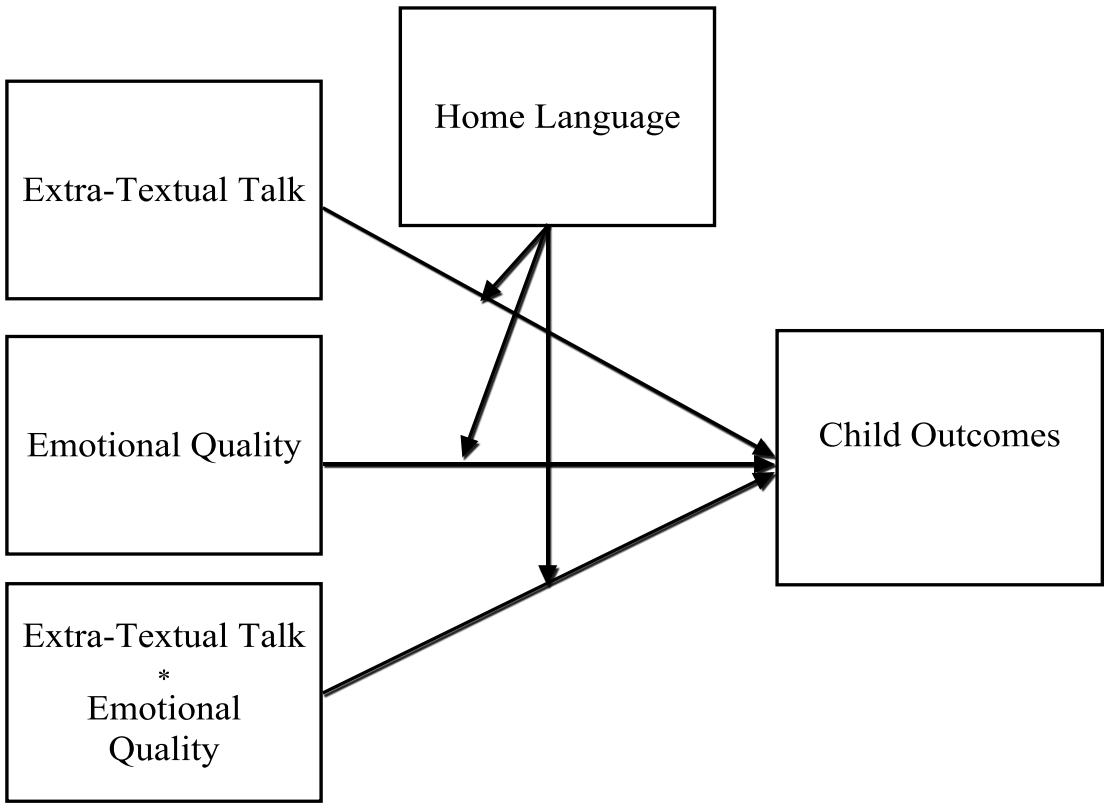
   Hypothesis: Change in Extra-Textual Talk and baseline Emotional Quality will predict changes in children's cognitive scores when entered into models individually (with control variables). Furthermore, an interaction between change in Extra-Textual Talk and Emotional Quality is hypothesized; pairing increases in Extra-Textual Talk with high Emotional Quality is expected to relate to more positive change in child outcomes than pairing increases in Extra-Textual Talk with low Emotional Quality.

In the latter case, there is expected to be a weak or no relationship between change in Extra-Textual Talk and child learning.

b. Exploring if the contributions of the interactions between (a) change in Extra-Textual talk and Home Language, (b) baseline Emotional Quality and Home Language, and (c) change in Extra-Textual talk, baseline Emotional Quality, and Home Language to child change in child cognitive scores.

These analyses were exploratory and no specific hypotheses were made.

Figure 2. Conceptual Model



Chapter 3

Methods

The 'Getting Ready' Project

The current study was part of a larger longitudinal investigation examining the effects of an intervention to promote parental engagement and school readiness among EHS, Head Start, and student-parent families and children between the ages of birth to 5 living in low socioeconomic conditions and at risk for academic, socioeconomic, and behavioral difficulties (Sheridan & Edwards, 2003). The *Getting Ready* project was conducted with families from the Midwest by researchers from the University of Nebraska-Lincoln.

The *Getting Ready Model* (Sheridan et al., 2008*)* was designed to provide an integrated, ecological, strengths-based approach to school readiness for families with children from birth to 5 years of age who were participating in home- and center-based early education and intervention programs. The model is grounded in evidence-based intervention strategies, family-centered principles, and collaborative structures of professional development and consultation with families. Principles of triadic intervention (McCollum & Yates, 1994) and collaborative (conjoint) consultation models (Sheridan & Kratochwill, 2008) were integrated in a unique, ecologically- and strengths-based intervention that advances the school readiness of young children and their families via enhanced relationships (Sheridan, Marvin, Knoche, & Edwards, 2008).

Parent-reported data, teacher-reported data and observations of parent-child interactions were collected over 2-year periods for all family participants in both the

intervention and control groups. The larger investigation examined effects of the *Getting Ready Model* intervention on teacher, parent, and child outcomes.

The current study was not focused on the effects of the intervention. Rather, the current study involved a secondary coding of observations of parent-child interactions collected from a sub-sample of the *Getting Ready* participants and an analysis of this observational data and child assessment data. Because the current study was not aimed at evaluating the effectiveness of the *Getting Ready* intervention, and because the relationship between the quality of parents' behavior during book-reading quality and their children's outcomes was not expected to differ for the intervention versus control participants, the proposed study sample included both intervention and control participants from the larger "Getting Ready Project" study. For the purpose of the current project, all participants were considered to be participating in an intervention, since all families were receiving quality EHS services.

EHS Programs

Early Head Start (EHS) is a federally-funded, community-based intervention program for low-income families with children under the age of three and pregnant women; it is designed to support the development of children and promote healthy family functioning. The EHS programs included in the current study were administered by two different community service agencies in four rural Midwest counties. EHS professionals provide weekly home-visiting services to pregnant women and families with children under age 3 years and focus on child development and parenting skills using developmental curricula (e.g. *Born to Learn*, Parents as Teachers National Center, 1999; *Beautiful Beginnings*, Raikes & Whitmer, 2006). Each professional has a caseload of 10

to 15 families; monthly group activities (socializations) are sponsored for enrolled families in addition to the scheduled weekly home visits.

Participants

Participants of this study included EHS families from the rural Midwest who participated in the *Getting Ready* project. This study utilized data collected from 81 parents and their children receiving home-based EHS services. These 81 families provided data at baseline (at the start of *Getting Ready* project) and again approximately 8 months into the project. Tables 1 and 2 summarize demographic characteristics at baseline for the children and parents, respectively. Note that because there was an interest in potential variations between home language subgroups (used as a proxy in this study for more global cultural variations), demographic and other information is provided for the full sample as well as the two home language subgroups (i.e., English, Spanish) through this report.

Table 1

Child Demographic Characteristics at Baseline

		Home Language	
	Full Sample (N = 81)	**English (n = 59)**	**Spanish (n = 22)**
Mean Age in Months	13	13	13
Range	2-27	3-24	2-27
Gender			
Male (%)	53	51	59
Female (%)	47	49	41
Race/Ethnicity			
White/non-Latino (%)	62	87	100
Hispanic/Latino (%)	34	11	0
Other (%)	4	2	0
Identified Disability (%)	16	15	18

Table 2

Parent Demographic Characteristics at Baseline

		Home Language	
	Full Sample (N = 81)	**English (n = 59)**	**Spanish (n = 22)**
Mean Age in Years	25	24	26
Range	14-49	14-49	19-35
Relationship to the Child			
Mother (%)	95	93	100
Father (%)	4	6	0
Grandmother (%)	1	1	0
Race/Ethnicity			
White/non-Latino (%)	67	91	0
Hispanic/Latino (%)	32	7	100
Other (%)	1	2	0
Level of Education			
Less than High School Diploma (%)	43	33	71
High School Diploma/ GED (%)	27	33	10
Training Beyond High School (%)	30	34	19
Marital Status			
Married/ with Partner (%)	37	43	81
Single/ Not with Partner (%)	63	57	19
Age of Parent at Child Birth			
18 or Younger (%)	21	25	10
Receiving Public Assistance			
Yes (%)	96	96	95
Employment Status			
Not Employed or in School (%)	45	53	23
Cumulative Risk[a]			
One Risk Factor (%)	18	15	24
Two Risk Factors (%)	40	37	48
Three Risk Factors (%)	25	27	19
Four Risk Factors (%)	11	14	5
Five Risk Factors (%)	6	7	5

[a] Risk Factors include: less than high school education; single parent household; 18 or younger at age of child birth, receiving public assistance, not employed or in school.

Data Collection

As part of the larger *Getting Ready* study, data collectors trained to administer all assessments with reliability met with EHS families with child assessments collected approximately every 8 months[4]. Arrangements were made to complete the assessments at a location convenient for the family, including the children's centers or the families' homes. Parents were interviewed to collect demographic and other information, children were administered cognitive and language assessments, and parents and children were video-taped engaging in a series of tasks including book reading.

Parent-child interactions were video-taped in semi-structured situations adapted from the procedures of the NICHD Early Child Care Research Network (2002) and based on tasks and materials determined to be developmentally appropriate for the age of the child involved. A blanket was laid on the floor, and parents were asked to sit on it with their child, in view of the camera. Parents received verbal directions and materials for each task and information about how many minutes they had left for each task from the research assistants who facilitated and videotaped the observations. One of the tasks included book-reading, and parent-child interactions during the book-reading task were considered for the current study. For this task, parents and children were provided with 2-4 books. The books they received were dependent on the child's age and home language of the family. Parents were instructed to read with their children and told that

[4] Though families met with research assistants every four months for the duration of their participation in the Getting Ready project, only data collected at the first (baseline; time of families' initial enrollment in EHS and the Getting Ready project) and third (after approximately 8 months of EHS and the Getting Ready project) were used for the current study. The 81 families included in the present study provided data at these two time points.

they could read one or more of the books. The book-reading tasks lasted approximately 5 minutes. The instructions and protocol for the observation and book reading activity are provided in Appendix A.

Bilingual English/Spanish-speaking data collectors administered assessments, conducted interviews, and facilitated parent-child interaction sessions with Spanish-speaking families. On each assessment visit families received a gift card to a local retailer.

Measures

The current study involved observational measures of qualities of parents' behaviors during shared book reading and direct assessments of children's cognitive and language skills. The study also utilized parent-reports of demographic information.

Observational measures. For this study, the parent-child book reading segments of video-taped observations were transcribed and coded for book-reading quality by trained research assistants. The two dimensions of quality that were coded were instructional and emotional.

Transcription and reliability. Research assistants transcribed all parent speech during the book-reading activity. Each of the parents' utterances was typed verbatim. An utterance was defined as a verbal statement or vocalization; it could be a full sentence, a phrase, a single word, or a non-word sound (e.g., Mmm-hmmm) that carried social meaning and filled a conversational turn. After the first draft of a transcript was completed, a second research assistant watched the video-tape, checked and if necessary, edited the transcript to develop the final version to be used for coding. Approximately ten percent of the transcripts (n=16) were transcribed by two independent research

assistants. A mean agreement score of 95% was obtained for transcription of intelligible words (range 89% to 99% per sample).

Instructional Quality and reliability. The Instructional Quality of parents' book reading was coded for each transcript using procedures adapted from those used by DeBaryshe (1995). Each parent utterance was coded as one of the following: (a) questions/requests (included *requests for the child to complete a book-related action/gesture, requests for the child to repeat the adult, yes-no questions, tag questions, what/ open-ended questions,* and *completion prompts*), (b) feedback (included *repetition, praise, correction,* and *expansion/topic continuation*), (c) book-related conversation/commentary, (d) reading (included *direct reading* and *close paraphrasing*), or (e) other[5] (included utterances that did not fit into the categories and were not relevant to the content of book, e.g., telling the child to come back to the blanket, talk directed at other individuals in the room). A list of the book-relevant Instructional Quality codes is provided in Table 3. In order to assess inter-rater reliability, one-third (n=55) of the transcripts were coded by two independent coders. Cohen's Kappa = .91 indicating adequate inter-rater reliability.

[5] Utterances that were coded as *other* were not used in the subsequent analyses.

Table 3

Instructional Quality Codes

Category	Utterances Included
Questions/Requests	(a) Requests for child to complete book-related action/gesture. (b) Requests for child to repeat adult. (c) Yes-no questions. (d) Tag questions. (e) What and open-ended questions. (f) Completion prompts.
Feedback	(a) Repetition. (b) Praise. (c) Correction. (d) Expansion/topic continuation.
Conversation/Commentary	(a) Conversation/Commentary.
Reading	(a) Reading. (b) Close paraphrasing.

Book-related *questions*, *feedback*, and *conversation/ commentary* were combined to determine the total number of *book-relevant extra-textual talk* utterances. In order to determine the percentage of book-relevant talk that was extra-textual, the number of *book-relevant extra-textual talk* utterances was divided by the total number of book-relevant utterances (*book-relevant extra-textual talk* + *reading*) and multiplied by 100. The resulting scores were labeled as Extra-Textual Talk scores and represent the degree to which parents adopted a more verbally interactive style of reading that moved beyond straight reading of text to include other book-relevant talk (i.e., questions, feedback, and

conversation and commentary); higher scores indicate the use of more book-relevant extra-textual talk (less reading of the text), while lower scores indicate the use of less book-relevant extra-textual talk (more reliance on reading of the text). From here on, the term Extra-Textual Talk will be used interchangeably with and reflect parents' Instructional Quality.

In order to compute a change in Extra-Textual Talk score to be used in subsequent analyses, the baseline Extra Textual Talk score was subtracted from the 8-months post-baseline Extra Textual Talk score. A score of 0 indicates no change, positive scores indicate increases in use of Extra-Textual Talk, and negative scores indicate decreases in use of Extra-Textual Talk.

Emotional quality and reliability. The video-taped book-reading interactions were coded for emotional quality using items modified from Sonnenschein and Munsterman (2002) and the Parent/Caregiver Involvement Scale (P/CIS; Farran et al., 1986). These items included (a) *Reading Expression,* (b) *Reader Sensitivity to Child's Engagement,* and (c) *Child Enjoyment and Involvement* (Sonnenschein & Munsterman) and (d) *Parent's Enjoyment of Child,* (e) *Parent's Acceptance of Child,* (f) *Amount of Positive Statements/Regard,* and (g) *Amount of Negative Statements/Regard* (P/CIS; Farran et al.).[6] Table 4 provides descriptions and anchors for the emotional quality items.

[6] Coding also included rating three additional items, *Reader's Appearance of Involvement* and *Contact with Child* (Sonnenschein and Munsterman, 2002) and *Quality of Handling of Child* (P/CIS; Farran et al., 1986). However these items were not used in the current analyses because it appeared that the structured research context may have influenced these particular parent behaviors. Additionally, coding originally included rating, "Parent Flexibility" (an item created specifically for this study); however, due to difficulties establishing reliability, this item was dropped from the coding.

In order to assess reliability, one-third of all video-taped observations (n=55) were coded by two independent coders; intraclass correlations (ICCs) for individual items ranged from .78 to .91 (average= .87) indicating adequate inter-rater reliability.[7]

An Emotional Quality composite score was computed using the seven emotional quality items. This score was intended to provide an indicator of general emotional atmosphere of the reading interaction. Adjustments to the raw scores were needed to combine the items. The *Reading Expression, Reader Sensitivity to Child's Engagement,* and *Child Enjoyment and Involvement* were re-coded from a 3-point to a 5-point scale to place all items on a 5-point scale (original score=recoded score: 1=1, 2=3, 3=5). Furthermore, the *Amount of Negative Statements/Regard* item was reverse coded in order to have all items on the same scale with 5 being considered the favorable score. The seven items were then summed and averaged, resulting in an Emotional Quality score ranging from 1 to 5 (1= low Emotional Quality; 5= high Emotional Quality). The Cronbach's alpha of the composite score was .76 indicating adequate internal consistency.

[7] Because the research questions focused on examining the contribution of parents' baseline Emotional Quality and the interaction between change in parents' Extra-Textual Talk and their baseline Emotional Quality to change in their children's learning outcomes, Emotional Quality change scores were not computed for the current study.

Table 4

Emotional Quality Coding Items and Anchors

Category	Scoring and Criteria
Reading expression	1 – Monotonous, flat reading, little attention to punctuation. 2 – Some tonal change, no imitation of voices; moderate expression. 3 – Expressive, multi-tonal reading; imitation of character voices, expression suggests suspense, etc.
Reader sensitivity to child's engagement[a]	1 – Displays none of the behaviors below. 2 – Displays 1 or 2 of the following behaviors: acknowledges child's feelings, periodic eye contact to gauge child's interest, attempts to recapture child's attention if waning. 3 – Displays 3 of the listed behaviors.
Child enjoyment and involvement	1 – Child rarely appeared to enjoy and be engaged/involved in the book reading interaction; child may have appeared bored, unengaged, upset, and/or wanting to do a different activity (e.g. explore toys on other side of room) during most of the interaction). 2 – Child sometimes appeared to enjoy and be engaged/involved during the book reading interaction (25-75% of time); indicators of enjoyment and engagement could include but are not limited to) smiling, laughing, looking at the book, intently paying attention to parent reading/book, pointing, talking about the book, exploring the pages visually and physically. 3 – Child usually appeared to enjoy and be engaged/involved during the book reading interaction (more than 75% of time).
Parent's Enjoyment of Child[b]	1 – Adult never seems to take pleasure in child; adult is either not involved or merely accepting. 2 – 3 – Sometimes adult seems to enjoy, take pleasure in and find happiness in being with child; about half the time or adult is neutral. 4 – 5 – Adult take delight in child; adult's enjoyment is obvious and continual.

Parent's Acceptance of the Child[b]	1 – Very low approval and acceptance; adult is definitely rejecting, disapproving of child or adult is indifferent. 2 – 3 – Moderate approval and acceptance; about half the time. 4 – 5 – Very high; adult exhibits much approval and acceptance.
Amount of Positive Regard/Statements (Toward Child) [b]	1 – Very little to none; adult almost never expresses positive emotion. 2 – 3 – Moderate; adult expresses positive emotion in moderate amounts (about 25% of adult's verbal behavior and non-verbal initiations). 4 – 5 – Very much; Adult expresses positive emotion very frequently (more than 50% of adult's verbal behavior and nonverbal initiations).
Amount of Negative Regard/Statements (Toward Child) [b]	1 – Very little to none; adult almost never makes negative statements. 2 – 3 – Moderate; adult expresses negative statements no more than 10% of the time. 4 – 5 – Very much; adult expresses negative emotion very frequently, more than 25% of his/her verbal behaviors and non-verbal initiations.

[a] This item was adapted from Sonnenschein and Musterman's (2002) original item, which also included a fourth *reader sensitivity to child's engagement* behavior, "asks if child is enjoying story." This behavior occurred only two times (out of 162 observations) in the data; for the purposes of this study, it was removed and the item was modified so that a rating of 3 indicates that parents displayed all three behaviors (in the original item, a rating of 3 indicated that parents displayed 3-4 of the behaviors).
[b] For these items, anchors were provided only for ratings 1, 3 and 5.

Child assessment measures. Child measures included assessments of cognitive and language skills. While all measures were collected at baseline and approximately 8 months post-baseline, the cognitive skills measure was the only post-baseline child

measure used for the current study to determine change over time. Due to changes in children's language use and competencies over the months between baseline and the follow-up assessment, some children whose language skills were assessed using the Spanish version of the language measure at baseline were assessed using the English version at post-baseline assessment. Computing change scores using the two different versions was considered inappropriate. Since language skill change scores were not available for the entire sample, language skill change was not examined as part of the current study.

Cognitive skills. The Bayley Scales of Infant Development – Second Edition (BSID-II; Bayley, 1993) Mental Scale was used to assess children's cognitive skills at baseline and approximately 8 months later.[8] The BSID-II is an individually administered test designed to assess the developmental status of infants and children, aged 1 month to 42 months. The BSID-II covers multiple domains of development, and includes test items that relate to language, emergent literacy, early mathematics ability, social development, and motor skills. Items on the mental scale assess memory, habituation, problem solving, early number concepts, generalization, classification, vocalizations, language, and social skills. Raw scores on the Mental Scale were converted to age-normed Mental Development Index (MDI) scores for interpretation of children's performance. The mean and standard deviation for the standardization sample is 100(15). The BSID-II was considered an appropriate measure for assessing cognitive development in the current study's rural, diverse sample of EHS children. The measure was

[8] This measure was translated to Spanish as part of the research study, but the same version of the measure was used for all families; Spanish-English bilingual families were assessed in the language chosen by the parent at each assessment visit.

standardized with a diverse sample (i.e., number of years of parental education, race/ethnicity, region), and has been used in studies of low-income children, including the National EHS Evaluation Project.

A change in Cognitive Scores variable was computed to reflect the change in standardized cognitive scores (measured using the BSID-II) between the baseline assessment and the follow-up assessments. While data collection protocol involved assessing children at baseline and 8 months post-baseline, there was variation in the actual number of months that lapsed between the two assessments; Mean (*SD*) = 10(2) months; range= 4-18 months. Due to this variation, it seemed most appropriate to recode all change scores to be on a scale reflecting how much children would be expected to change over 8 months. Average change in Cognitive Score per month was figured for each child by first computing: *change in cognitive scores between the two assessment periods*/ *number of months that lapsed between the two assessment periods*. This number represented the average amount of change in (standardized) cognitive score per month for each child. This number was then multiplied by 8 to compute change in standardized cognitive score scaled to 8 months.

Language skills. The Preschool Language Assessment – Fourth Edition (PLS-IV; Zimmerman, Steiner, & Pond, 2002a) and Preschool Language Assessment – Fourth Edition Spanish (PLS-IV Spanish; Zimmerman, Steiner, & Pond, 2002b) were used to assess children's language developmental status. Children were assessed in the language that parents reported they used most frequently in the home. The PLS-IV and PLS-IV Spanish are individually administered tests designed to identify children who have language disorders or delays. These assessments are designed to be administered to

children birth through 6 years, 11 months. The PLS-IV and PLS-IV Spanish include two language subscales, Auditory Comprehension and Expressive Communication and these subscales were used for the current study[9]. The Auditory Comprehension and Expressive Communication subscale tasks vary by child age. The Auditory Comprehension subscale measures how much language the child understands. For infants and toddlers this subscale involves precursors of language (e.g., attention to speakers, responding to basic requests like "no-no"). The Expressive Communication subscale measures how well the child communicates with others. Infant and toddler tasks initially assess rudimentary aspects of expressive language, such as the ability to make sounds of pleasure, and later involve tasks that require the child to demonstrate verbally language complexity such as plural tense use. The PLS-IV and PLS-IV Spanish were considered appropriate for assessing language skills in the current study's sample. These measures were standardized with socioeconomically and culturally diverse samples. While there are some differences items in the English and Spanish versions of the test for older children, the Examiner's Manual indicates that, "Early milestones below the age 3 are almost identical on the Spanish and English edition of the test" (Zimmerman, Steiner, & Pond, 2002b p. 2).

Demographic characteristics. Demographic characteristics considered as part of the current study included child gender, child age at baseline, families' level of cumulative risk, and home language. This data was collected from

[9] While a Total Language score can be computed by summing the Auditory Comprehension and Expressive Communication subscale standard scores, the present study focused only on the subscale scores. Research on Dialogic Reading by Whitehurst and colleagues have found that this approach has positive effects on Oral Language skills, so there was an interest in examining Auditory Comprehension and Expressive Communication separately.

parents via interviews conducted by trained research assistants. Child age was reported in months. Cumulative risk was computed by summing the number of the following risk factors experienced by families: (a) less than high school education, (b) single parent household, (c) 18 or younger at age of child birth, (d) receiving public assistance, and (e) not employed or in school. Higher scores indicated that the families experienced more risk factors. The language in which families requested to be assessed at baseline was considered their home language (i.e., English was considered to be the home language of families who requested to be assessed in English; Spanish was considered to be the home language of families who requested to be assessed in Spanish).

Data Analyses

This study had several goals focused on understanding the contribution of parents' book-reading qualities to children's learning. These goals focused both on understanding concurrent relationships and relationships over time, and included exploring if patterns of relationships differed for families that spoke English or Spanish as their home language. Correlation and multiple regression analyses were conducted to test hypotheses (described in chapter 2) and evaluate the contribution of book-reading qualities to child learning. Models were tested to examine these relationships both concurrently and over time (scaled to 8 months).

The first set of goals was focused on examining concurrent relationships between parents' book-reading qualities and children's learning at baseline. This involved examining the contribution of (a) Extra-Textual Talk, (b) Emotional Quality, and (c) the

interaction between Extra-Textual Talk and Emotional Quality to child cognitive, expressive communication, and auditory comprehension scores at baseline.

The second set of goals was focused on examining the relationship between parents' book-reading qualities (and change in book-reading qualities) to change in children's learning. This involved examining the contribution of (a) change in Extra-textual Talk, (b) baseline Emotional Quality, and (c) the interaction between change in Extra-Textual Talk and baseline Emotional Quality to change in child cognitive scores.

The third set of goals was focused on exploring if the concurrent relationships between book-reading qualities and child learning at baseline differed for families who spoke English as their home language and for families who spoke Spanish as their home language. This involved examining the contribution of the interactions between (a) Extra-Textual Talk and Home Language, (b) Emotional Quality and Home Language, and (c) Extra-Textual Talk, Emotional Quality, and Home Language to child cognitive, expressive communication, and auditory comprehension scores at baseline.

The last set of goals was focused on exploring if the relationships between book-reading qualities (including changes in book-reading qualities) and changes in child learning differed for families who spoke English as their home language and for families who spoke Spanish as their home language. This involved examining the contributions of the interactions between (a) change in Extra-Textual Talk and Home Language, (b) baseline Emotional Quality and Home Language, and (c) change in Extra-Textual Talk, baseline Emotional Quality, and Home Language to change in child cognitive scores.

Chapter 4

Results

Assumptions of Multiple Regression Analyses

Prior to completing multiple regression analyses, various conditions were assessed to determine if the assumptions of multiple regression, including normality, homoscedasticity, and linearity were met (Tabachnick & Fidell, 2001). Multivariate normality is the assumption that each variable and all linear combinations of variables are normally distributed; homoscedasticity is the assumption that variability in scores for one continuous variable is roughly the same at all values of another continuous variable; linearity is the assumption that there is a straight-line relationship between two variables. To assess for normality, skewness and kurtosis values were examined for each variable. Results of evaluation of assumptions led to transformation of baseline Cognitive scores to reduce skewness and kurtosis and improve normality, (as further discussed in description of Cognitive scores below). Bivariate scatterplots (with IV on x axis and DV on y axis; included transformed Baseline Cognitive scores as DV) were examined. The scatterplot distributions appeared to be oval-shaped indicating that the assumption of linearity was not violated. Furthermore, scatterplot distributions appeared to be roughly the same width across all levels of the variable, indicating that the assumption of homoscedasticity was not violated.

The cases-to-IVs ratio was also assessed. According to Tabachnick and Fidell (2001), the required sample size depends on a number of issues, including desired power, alpha level, number of predictors, and expected effect sizes. The simplest rules of thumb include $N \geq 50 + 8m$ (where m is the number of IVs) for testing multiple regression

models, and $N \geq 104 + m$ for testing individual predictor variables). These rules of thumb are based on assumptions that there are medium-sized relationships between IVs and DVs, that $a = .05$, and that $\beta = .20$. The proposed models that were tested as part of this study included 4, 6, or 10 predictors (each model included three control variables, and 1, 3, or 7 predictor variables respectively). Using the above described criteria, in order to have sufficient statistical power to test these regression models, sample sizes should be 82, 98, and 130; in order to have sufficient statistical power to test individual predictors, sample sizes should be 108, 112, and 114 respectively. The current study included 81 participants. Therefore, statistical power was limited for testing some of the models and testing individual predictors and results from the analyses conducted with limited statistical power should be interpreted with appropriate levels of caution.

Control Variables

Three demographic characteristics (child gender, family cumulative risk, and child age at baseline) were considered to be potentially important control variables in the models. Preliminary exploratory analyses were conducted using correlation coefficients to determine if the three demographic characteristic variables were related to any of the study variables. Table 5 summarizes the correlations between demographic characteristics and predictor variables, and Table 6 summarizes the correlations between demographic characteristics and criterion variables. A positive, statistically significant correlation between Family Cumulative Risk and Child Baseline Auditory Comprehension scores was observed, indicating that families who experienced more risk factors had children with higher Auditory Comprehension scores; this was an unexpected finding and may be important for understanding this sample. Statistically controlling for

the three demographic characteristics was considered appropriate; in order to provide consistency, the same set of control variables were included in all of the regression models tested as part of this study. Child gender was dummy-coded (0=female, 1=male) and child age was centered at the mean for the purpose of interpretation.

Table 5

Correlations for Demographic Characteristics and Predictor Variables

	Child Gender	**Child Age at Baseline**	**Family Cumulative Risk**
Extra-Textual Talk at Baseline			
Full Sample	-.06	.02	.01
Home Language: English	-.05	.12	.00
Home Language: Spanish	-.19	-.26	.19
Emotional Quality at Baseline			
Full Sample	-.02	-.12	-.24*
Home Language: English	-.03	-.09	-.28*
Home Language: Spanish	.03	-.15	-.21
Change in Extra-Textual Talk			
Full Sample	-.01	-.02	-.11
Home Language: English	-.05	-.09	-.12
Home Language: Spanish	.18	.23	-.14

***$p < .001$, **$p < .01$, *$p <. 05$, $^{+}p \leq .10$

Table 6

Correlations for Demographic Characteristics and Criterion Variables

	Child Gender	Child Age at Baseline	Family Cumulative Risk
Baseline Cognitive			
Full Sample	-.10	-.12	.09
Home Language: English	-.25^{+}	-.08	.15
Home Language: Spanish	-.40^{+}	-.18	.20
Change in Cognitive			
Full Sample	-.12	-.21	.12
Home Language: English	-.07	-.21	.24
Home Language: Spanish	-.20	-.20	-.44
Baseline Expressive Communication			
Full Sample	-.22^{+}	-.14	.09
Home Language: English	-.28*	-.09	.12
Home Language: Spanish	-.08	-.30	.11
Baseline Auditory Comprehension			
Full sample	-.20^{+}	-.20^{+}	.23*
Home Language: English	-.31*	-.13	.27*
Home Language: Spanish	.012	-.39^{+}	.25

***$p < .001$, **$p < .01$, *$p <. 05$, $^{+}p \leq .10$

Descriptive Statistics

Descriptive statistics for predictor variables and criterion variables are provided below and in Tables 7 and 8 respectively. Tables provide descriptive statistics for the full sample, as well as for the two home language sub-groups.

Predictor variables. The predictor variables in the study included baseline Extra-Textual Talk, baseline Emotional Quality, and change in Extra-Textual Talk, as well as interactions between these predictor variables and interactions between these predictor variables and home language. Descriptive information for the predictors is described below and summarized in Table 7.

Table 7

Descriptive Statistics for Predictor Variables

				Range	
	N	**Mean**	***SD***	**Min**	**Max**
Baseline Extra-Textual Talk[a]					
Full Sample	81	67	27	4	100
Home Language: English	59	63	28	4	99
Home Language: Spanish	22	76	21	14	100
Baseline Emotional Quality[b]					
Full Sample	81	3.4	0.7	1.6	4.6
Home Language: English	59	3.5	0.7	1.9	4.6
Home Language: Spanish	22	3.3	0.7	1.6	4.6
Change in Extra-Textual Talk[c]					
Full Sample	81	2	32	-89	94
Home Language: English	59	2	35	-89	94
Home Language: Spanish	22	3	21	-35	55

[a] Scores reported in percentages; high scores represent more Extra-Textual Talk and low scores indicate less Extra-Textual Talk.
[b] Scores range from 1 to 5 with 1=low quality and 5=high quality.
[c] Scores reported in percentage change.

Baseline Extra-Textual Talk. High baseline Extra-Textual Talk scores indicated the use of more Extra-Textual Talk. The mean Extra-Talk score for this sample was 67%, indicating that on average, about two-thirds of parents' book-relevant talk was

Extra-Textual Talk. However, there was great variation, with scores ranging from 4% to 100%.

Baseline Emotional Quality. The mean Emotional Quality score for this sample was 3.4 indicating that on average, parents provided medium emotional quality during book-reading. Emotional Quality scores ranged from 1.6 to 4.6.

Change in Extra-Textual Talk. The mean change in Extra-Textual Talk score for this sample was 2%, indicating that on average there was minimal change in use of Extra-Textual Talk. However, there was a wide range (-89% to 94%) indicating variability in change.

Criterion variables. The criterion variables in the study included baseline cognitive scores, change in cognitive scores, baseline expressive communication, and baseline auditory comprehension. Descriptive information for the criterion variables appear below and in Table 8.

***Baseline Cognitive scores*.** The mean BSID-II MDI score for this study's sample was 92, indicating that that on average, children performed slightly lower than the standardized sample mean average of 100. This did not seem unusual since lower average performance scores are commonly found in samples of socioeconomically disadvantaged children.

Examination of descriptive statistics indicated that this variable had significant skewness and kurtosis (Tabachnick & Fidell 1996). Skewness has to do with symmetry of distribution. Skewness was assessed by dividing the skewness score (-1.19) by the skewness stanardard error score (.27); this resulted in a value of -4.41. (Scores below -3 or above 3 were considered problematic). Kurtosis has to do with the peakedness of

distribution. Kurtosis was assessed by dividing the kurtosis score (2.45) by the kurtosis standard error score (.54); this resulted in a value of 4.54. (Scores below -3 or above 3 were considered problematic). In an attempt to make data more normally distributed, a square transformation was completed. This transformation was successful in improving the distribution of the data and transformed data were used in subsequent analyses.

Table 8

Descriptive Statistics for Criterion Variables

				Range	
	N	**Mean**	***SD***	**Min**	**Max**
Baseline Cognitive Scores					
Full Sample	77	91.96	12.70	50	114
Home Language: English	57	90.25	13.34	50	112
Home Language: Spanish	20	96.85	12.70	82	114
Cognitive Score Change					
Full Sample	73	-2.95	12.70	-34	20
Home Language: English	56	-2.60	12.12	-34	20
Home Language: Spanish	17	-4.14	12.63	-26	15
Baseline Expressive Communication Scores					
Full Sample	79	106.04	12.79	77	140
Home Language: English	57	105.14	13.31	77	140
Home Language: Spanish	22	108.36	12.64	22	129
Baseline Auditory Comprehension Scores					
Full Sample	79	98.71	12.97	61	127
Home Language: English	57	96.75	13.31	68	126
Home Language: Spanish	22	103.77	12.64	61	127

Change in Cognitive Scores. Change scores of 0 indicate no change in BSID-II MDI, negative scores indicate decreases in Bayley MDI, and positive scores indicate increases in Bayley MDI. On average, children were decreasing in Bayley MDI by about 3 points, though there was a range in how much children decreased or increased (-34 to 20).

Baseline Expressive Communication. Expressive Communication scores were based on the Preschool Language Scale-IV (PLS-IV & PLS-IV Spanish) Expressive Communication scales. Raw scores were converted to age-normed standardized scores for purpose of interpretation; the mean and standard deviation for the standardized scores are 100(15). The mean score for this study's sample was 106. This indicates that on average, children performed slightly higher than the standardization sample mean average in their primary home language.

Baseline Auditory Comprehension. Auditory comprehension scores were based on the Preschool Language Scale-IV (PLS-IV & PLS-IV Spanish) Auditory Comprehension scales. Raw scores were converted to age-normed standardized scores for purpose of interpretation; the mean and standard deviation for the standardized scores are 100(15). The mean score for this study's sample was 99, indicating that on average, children performed near the standardization sample mean average in their primary home language.

Correlation Analyses

Intercorrelations between predictor variables demonstrated that variables were correlated but not to the degree that would suggest problems with multicollinearity. Intercorrelations between predictor variables are presented Table 9. It is worth noting

that patterns of intercorrelations between predictor variables appear to differ for the two home language sub-groups. While a strong, positive correlation between baseline Extra-Textual Talk and baseline Emotional Quality is observed in the sub-group of families who spoke English as their home language ($r = .56$, $p < .01$), this same relationship is weaker ($r = .27$) and not statistically significant for the subgroup of families who spoke Spanish as their home language. However, when the Fisher *r*-to-*z* transformation test was used to evaluate the significance of the differences between the two correlation coefficients, the difference was found to not be significant ($z = 1.34$, $p = .18$). A negative, statistically significant correlation was observed between Emotional Quality at baseline and change in Extra-Textual Talk for the subgroup of families who spoke English as their home language, indicating that starting out higher on Emotional Quality was associated with less change in use of Extra-Textual Talk. The relationship between Emotional Quality at baseline and change in Extra-Textual Talk for the subgroup of families who spoke Spanish as their home language was weaker and not statistically significant. A Fisher *r*-to-*z* transformation test was used to evaluate the significance of the differences between the two correlation coefficients, and the difference was found to approach significance ($z = -1.6$, $p = .10$).

Tables 10 and 11 summarize the bivariate correlations between the predictor variables and criterion variables. Bivariate correlations are provided for the full sample and for home language sub-groups. Bivariate correlation analyses indicated there were not statistically significant correlations between the predictor and criterion variables for the full group or language sub-groups.

Table 9

Intercorrelations for Predictor Variables

	Emotional Quality at Baseline
Extra-Textual Talk at Baseline	
Full Sample	.45**
Home Language: English	.56**
Home Language: Spanish	.27
Change in Extra-Textual Talk	
Full Sample	-.32**
Home Language: English	-.41**
Home Language: Spanish	-.01

***$p < .001$, **$p < .01$, *$p <. 05$, $^{+}p \leq .1$

Table 10

Correlations Between Predictor and Criterion Variables at Baseline

	Cognitive Scores at Baseline	**Expressive Communication Scores at Baseline**	**Auditory Comprehension Scores at Baseline**
Baseline Extra-Textual Talk			
Full Sample	-.10	.07	.16
Home Language: English	-.11	-.02	.06
Home Language: Spanish	-.26	.30	.31
Baseline Emotional Quality			
Full Sample	-.06	.07	.10
Home Language: English	-.05	.06	.01
Home Language: Spanish	-.26	.11	$.42^{+}$

***$p < .001$, **$p < .01$, *$p <. 05$, $^{+}p \leq .1$

Table 11

Intercorrelations Between Predictors Over Time

	Cognitive Scores at Baseline
Baseline Extra-Textual Talk	
Full Sample	.15
Home Language: English	.08
Home Language: Spanish	.41
Baseline Emotional Quality	
Full Sample	-.03
Home Language: English	-.05
Home Language: Spanish	.09

***$p < .001$, **$p < .01$, *$p <. 05$, $^{+}p \leq .1$

Regression Analyses

Prior to conducting regression analyses, continuous variables included in interactions (Extra-Textual Talk and Emotional Quality) were centered at the mean. Additionally, child age was centered at the mean for the purposes of interpretation. Home language and child gender were dummy-coded (0=English, 1= Spanish; 0=Female, 1=Male, respectively).

Despite finding no statistically significant bivariate correlations between the predictor and criterion variables, regression models (corresponding with the study goals and hypotheses) were tested as planned. Regression models with book-reading qualities as predictors of child learning were tested and are described below. All models included child gender, child age at baseline, and family level of cumulative risk as control variables.

Criterion variable: Baseline Cognitive scores. First, a series of multiple regression analyses were conducted to test the contributions of (a) Extra-Textual Talk, (b) Emotional Quality, (c) the interaction between Extra-Textual Talk and Emotional Quality to baseline Cognitive scores. These results demonstrated that the regression models did not account for a statistically significant amount of variance (as presented in Table 12). Next, a series of multiple regression analyses were conducted to explore if home language interacted with book-reading qualities to predict baseline Cognitive scores. These models tested the contribution of the interactions between (a) Extra-Textual Talk and Home Language, (b) Emotional Quality and Home Language, and (c) Extra-Textual Talk, Emotional Quality, and Home Language to baseline Cognitive scores. Only the model including the three-way interaction between Extra-Textual Talk, Emotional Quality, and Home Language accounted for a statistically significant amount of variance ($R^2 = .26$, F (10, 66) = 2.31, $p = .02$), and the three-way interaction was a statistically significant predictor in the model ($p < .01$) (see Table 13 and Figure 3). Since interpreting a three-way interaction is complicated, plots have been generated to demonstrate the patterns of these relationships using procedures described by Tabachnick and Fidell (2001, pp. 152-153). The regression model was solved at chosen levels Extra-Textual Talk and Emotional Quality; specifically these levels were one standard deviation below the mean and one standard deviation above the mean as the low and high levels of the variables respectively. As shown in the plots, for families who spoke English as their home language, when Emotional Quality was high, the use of more Extra-Textual Talk was related to higher Cognitive scores, but when Emotional Quality was low, the use of less Extra-Textual Talk was related to higher Cognitive scores. For

families who spoke Spanish as their home language, when Emotional Quality was high, the use of less Extra-Textual Talk was related to higher Cognitive scores, but when Emotional Quality was low, the amount of Extra-Textual Talk was not related to Cognitive scores.

Simple slopes analyses were conducted to identify specific differences in the effect of Emotional Quality and Extra-Textual Talk for families whose Home Language was English or Spanish on Cognitive scores. Results indicate that there was a significant difference in the slopes of Emotional Quality on Cognitive scores for families whose Home Language was English and who demonstrated high and low Extra-Textual Talk ($t = 3.04$, $p < .01$), where Cognitive scores were highest for high Emotional Quality, high Extra-Textual Talk families whose Home Language was English. Further, there were significant differences in the slopes of the effect of Emotional Quality on Cognitive scores for families whose Home Language was Spanish and who used low levels of Extra-Textual Talk and both groups (low Extra-Textual Talk group, high Extra-Textual Talk group) of families whose Home Language was English ($t = -3.01$, $p < .01$ for low Extra-Textual Talk families and $t = 3.31$, $p < .01$ for high Extra-Textual Talk families), with highest Cognitive scores for families whose Home Language was English and who demonstrated high Emotional Quality and high Extra-Textual Talk. Significant differences were also found among families whose Home Language was Spanish and who demonstrated high Extra-Textual talk and both groups (low Extra-Textual Talk group and high Extra-Textual Talk group) of English-speaking families ($t = -2.51$, $p = .01$ for low Extra-Textual Talk families and $t = -3.17$, $p < .01$ for high Extra-Textual Talk families), with higher Cognitive scores for families whose Home Language was English

and who demonstrated high Extra-Textual Talk and high Emotional Quality. No significant difference in slopes was found for families whose Home Language was Spanish and demonstrated high and low levels of Extra-Textual Talk (t = -.99, p = .33).

Table 12

Regression Models (Not Including Home Language) Predicting Baseline Cognitive Scores

Variable	*B*	*SE B*	*β*	*t*
With Extra-Textual Talk[a]				
(Constant)	8236.93	658.23	-	12.51***
Extra-Textual Talk	-5.42	9.01	-0.07	-0.60
Child Gender	-523.34	499.94	-0.12	-1.05
Child Age	-29.28	41.48	-0.08	-0.71
Family Cumulative Risk	264.04	231.05	0.13	1.14
With Emotional Quality[b]				
(Constant)	8343.57	676.37	-	12.34***
Emotional Quality	-256.98	363.11	-0.08	-0.70
Child Gender	-502.47	498.52	-0.12	-1.01
Child Age	-34.34	41.96	-0.10	-0.82
Family Cumulative Risk	216.72	239.54	-0.11	0.91
With Extra-Textual Talk * Emotional Quality				
(Constant)	8381.35	688.62	-	12.17***
Extra-Textual Talk * Emotional Quality	13.18	13.48	0.14	0.98
Extra-Textual Talk	1.77	11.48	0.02	0.15
Emotional Quality	-170.75	424.60	-0.06	-0.40
Child Gender	-608.84	512.54	-0.14	-1.19
Child Age	-48.09	45.21	-0.14	-1.06
Family Cumulative Risk	177.73	250.08	0.09	0.71

[a] R^2 = .04, F (4, 72) = .84 , p =.51, [b] R^2 = .05, F (4, 72) = .87, p =.49, [c]R^2 = .06, F (6, 70) = .75, p = .62
***p < .001, **p < .01, *p <. 05, $^{+}p \leq .1$

Table 13

Regression Models (Including Home Language) Predicting Baseline Cognitive Scores

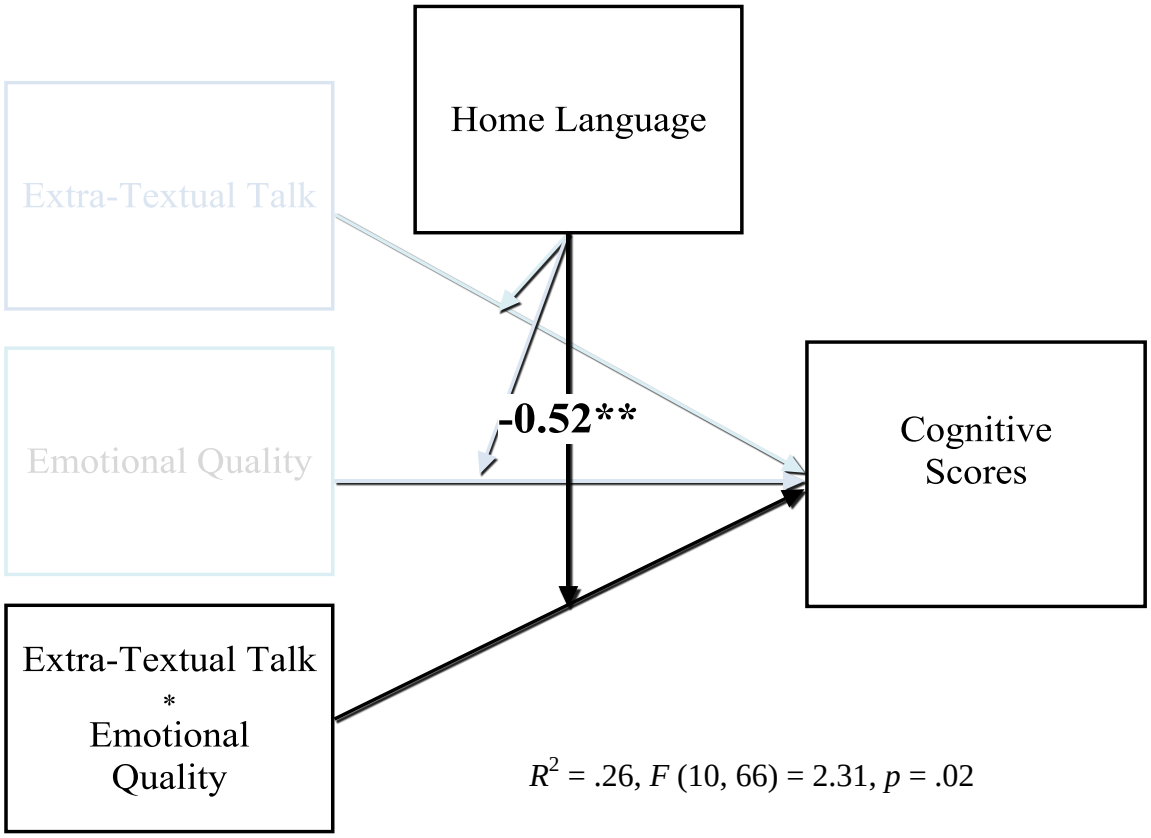
Variable	*B*	*SE B*	*β*	*t*
With Extra-Textual Talk * Home Language[a]				
(Constant)	7640.52	676.37	-	11.30***
Extra-Textual Talk * Home Language	-12.45	22.58	-0.07	-0.55
Extra-Textual Talk	-8.05	10.01	-0.10	-0.80
Home Language	1549.73	585.53	0.32	2.65*
Child Gender	-678.96	487.53	-0.16	-1.39
Child Age	-27.51	40.75	-0.08	-0.68
Family Cumulative Risk	380.61	227.71	0.19	1.67^{+}
With Emotional Quality * Home Language[b]				
(Constant)	7743.13	707.23	-	10.95***
Emotional Quality * Home Language	-462.64	769.48	-0.08	-0.60
Emotional Quality	-5.05	426.06	0.00	-0.01
Home Language	1257.39	560.81	0.26	2.24*
Child Gender	-600.20	488.60	-0.14	-1.23
Child Age	-28.35	41.06	-0.08	-0.69
Family Cumulative Risk	336.64	239.14	0.17	1.41
With Extra-Textual Talk * Emotional Quality * Home Language[c]				
(Constant)	7316.85	696.04	-	10.51***
Extra-Textual Talk * Emotional Quality * Home Language	-80.42	26.94	-0.52	-2.99**
Extra-Textual Talk * Emotional Quality	40.68	15.13	0.44	2.69**
Extra-Textual Talk * Home Language	-38.36	27.46	-0.23	-1.39
Emotional Quality * Home Language	-873.86	822.83	-0.15	-1.06
Extra-Textual Talk	-7.40	12.18	-0.01	-0.61
Emotional Quality	836.45	528.65	0.27	1.58

Home Language	2387.72	648.14	0.49	3.68***
Child Gender	-772.86	473.14	-0.18	-1.63
Child Age	-4.83	43.48	-0.01	-0.11
Family Cumulative Risk	343.89	237.21	0.18	1.45

[a] $R^2 = .13$, F (6, 70) = 1.77 , $p = .12$; [b]$R^2 = .12$, F (6, 70) = 1.5, $p = .18$; [c] $R^2 = .26$, F (10, 66) = 2.31, $p = .02$

***$p < .001$, **$p < .01$, *$p <. 05$, $^{+}p \leq .1$

Figure 3. Regression Model for Baseline Cognitive Scores



R^2 = .26, F (10, 66) = 2.31, p = .02

Child Gender (-0.18)

Child Age (-0.01)

Family Cumulative Risk (0.18)

Home Language (0.49*)

Extra-Textual Talk (-0.01)

Emotional Quality (0.27)

Extra-Textual Talk * Emotional Quality (0.44**)

Extra-Textual Talk * Home Language (-0.23)

Emotional Quality * Home Language (-0.15)

Notes: This figure includes Beta weight coefficients in parentheses for all variables included as predictors in the model.

***p < .001, **p < .01, *p < .05, +$p \leq$ .1

Figure 4. Interaction Between Extra-Textual Talk and Emotional Quality Predicting Baseline Cognive Scores for Children Home Language-English

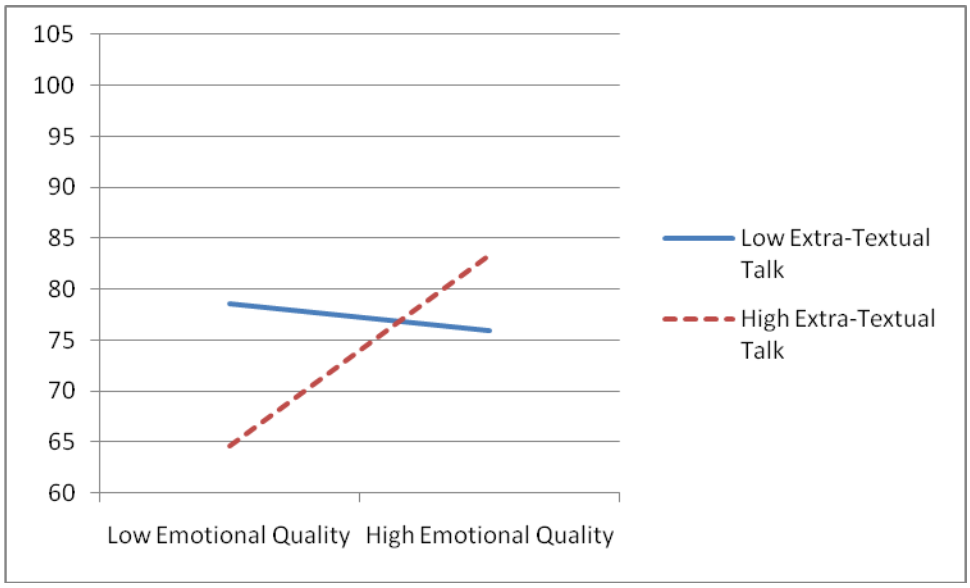
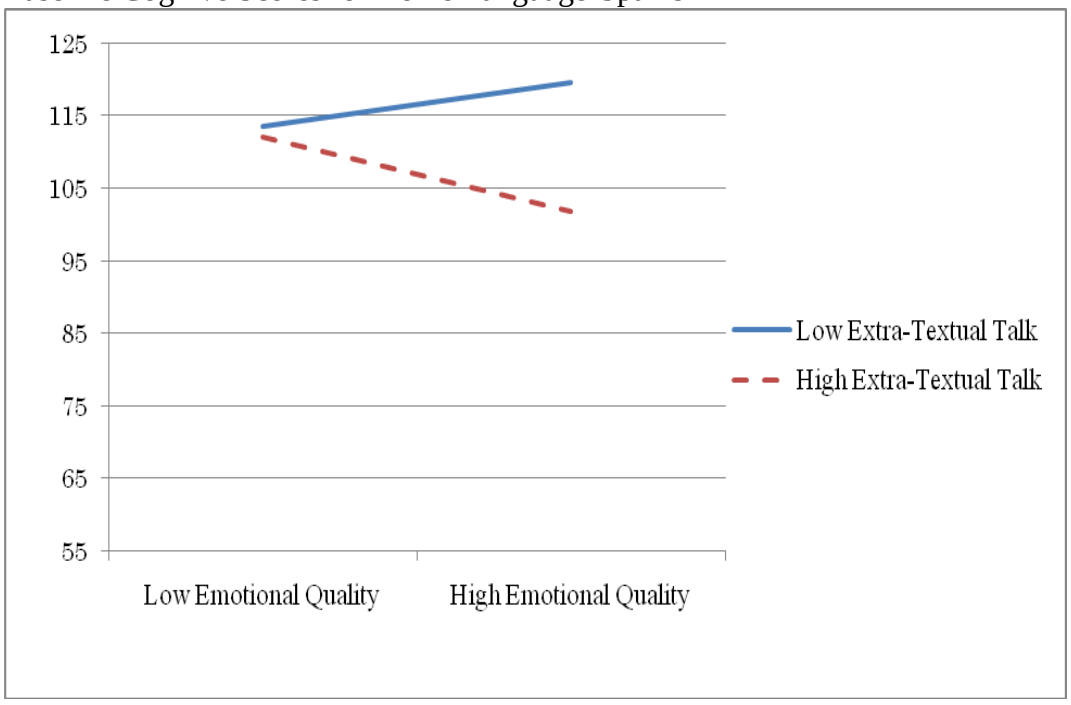


Figure 5. Interaction Between Extra-Textual Talk and Emotional Quality Predicting Baseline Cognive Scores for Home Language-Spanish



Criterion variable: Change in Cognitive scores. First, a series of multiple regression analyses were conducted to test the contributions of (a) change in Extra-Textual Talk, (b) Emotional Quality, (c) the interaction between change in Extra-Textual Talk and Emotional Quality to change in Cognitive scores. These results demonstrated that the regression models did not account for a statistically significant amount of variance (as presented in Table 14). Next, a series of multiple regression analyses were conducted to explore if home language interacted with book-reading qualities to predict change in Cognitive scores. These models tested the contribution of the interactions between (a) change in Extra-Textual Talk and Home Language, (b) Emotional Quality and Home Language, and (c) Extra-Textual Talk, Emotional Quality, and Home Language to change in Cognitive scores. The amount of variance accounted for by the model including the three-way interaction between change in Extra-Textual Talk, Emotional Quality, and Home Language approached significance (R^2 = .24, F (10, 62) = 1.97, p =.052), and the three-way interaction was a statistically significant predictor in the model (p < .05) (see Table 15 and Figure 6). Again, since interpreting a three-way interaction is complicated, graphs have been provided to demonstrate the patterns of these relationships; these graphs were created using values obtained from conducting separate analyses with the two separate language sub-groups (i.e., English and Spanish) (see Figures 7 and 8). As shown in the graphs, for families who spoke English as their home language, when Emotional Quality was high, increases in the use of Extra-Textual Talk were related to increases in Cognitive scores, but when Emotional Quality was low, decreases in the use of Extra-Textual Talk were related to increases in Cognitive scores. For families who spoke Spanish as their home language, when Emotional Quality was

high, decreases in the use of Extra-Textual Talk were related to increases in Cognitive scores; this same relationship was observed at lower levels of Emotional Quality but was less pronounced.

Simple slopes analyses were conducted to identify specific differences in the effect of Emotional Quality and change in Extra-Textual Talk for families whose Home Language was English or Spanish on change in Cognitive scores. Results indicate that there was a significant difference in the slopes of Emotional Quality on change in Cognitive scores for families whose Home Language was English with increases and decreases in Extra-Textual Talk ($t = 3.11$, $p < .01$), where change in Cognitive scores was greatest for high Emotional Quality, increasing Extra-Textual Talk families. Further, there were significant differences in the slopes of the effects of Emotional Quality on change in Cognitive scores for families whose Home Language was English and increased in Extra-Textual Talk and for families whose Home Language was Spanish and decreased in Extra-Textual Talk ($t = 2.82$, $p < .01$) with highest scores for the families who spoke Spanish as their Home Language and decreased in Extra-Textual Talk. Additionally, there were significant differences in the slopes of the effects of Emotional Quality on change in Cognitive scores for families whose Home Language was English and increased in Extra-Textual Talk and for and families whose Home Language was Spanish and increased in Extra-Textual Talk ($t = 2.43$, $p < .05$) with highest scores for families who families whose Home Language was English and increased in Extra-Textual Talk. No significant differences in slopes were found for families whose Home Language was Spanish and demonstrated decreases and increases in Extra-Textual Talk ($t = -1.04$, $p = .30$), or for families whose Home Language was Spanish and demonstrated

increases in Extra-Textual Talk and for families whose Home Language was English and demonstrated increases in Extra-Textual Talk (t = -0.77, p=.44). Additionally, no significant difference in slopes was found for families whose Home Language was English and demonstrated increases in Extra-Textual Talk and families whose Home Language was Spanish and demonstrated decreases in Extra-Textual Talk (t = -.59, p = .56).

Table 14

Regression Models (Without Home Language) Predicting Change in Cognitive Scores

Variable	*B*	*SE B*	*β*	*t*
With Extra-Textual Talk[a]				
(Constant)	-3.80	3.79	-	-1.00
Change in Extra-Textual Talk	-0.01	0.05	-0.02	-0.18
Child Gender	-3.18	2.86	-0.13	-1.11
Child Age	-0.37	0.24	-0.18	-1.55
Family Cumulative Risk	1.02	1.33	0.09	0.77
With Emotional Quality[b]				
(Constant)	-5.08	3.83	-	-1.33
Emotional Quality	2.82	2.09	0.16	1.35
Child Gender	-3.20	2.82	-0.13	-1.13
Child Age	-0.32	0.24	-0.16	-1.33
Family Cumulative Risk	1.54	1.36	0.14	1.13
With Extra-Textual Talk* Emotional Quality[c]				
(Constant)	-6.48	3.96	-	-1.64
Change in Extra-Textual Talk* Emotional Quality	0.10	0.07	0.21	1.53
Change in Extra-Textual Talk	0.04	0.05	0.11	0.81
Emotional Quality	2.51	2.28	0.15	1.10
Child Gender	-2.42	2.86	-0.10	-0.85
Child Age	-0.18	0.25	-0.09	-0.72
Family Cumulative Risk	2.22	1.44	.0.20	1.55

[a] $R^2 = .0$, F (4, 68) = 1.17, $p = .33$; [b]$R^2 = .09$, F (4, 68) = 1.64, $p = .17$; [c]$R^2 = .12$, F (6, 66) = 1.51, $p = .19$ ***$p < .001$, **$p < .01$, *$p <. 05$, $^{+}p \leq .1$

Table 15

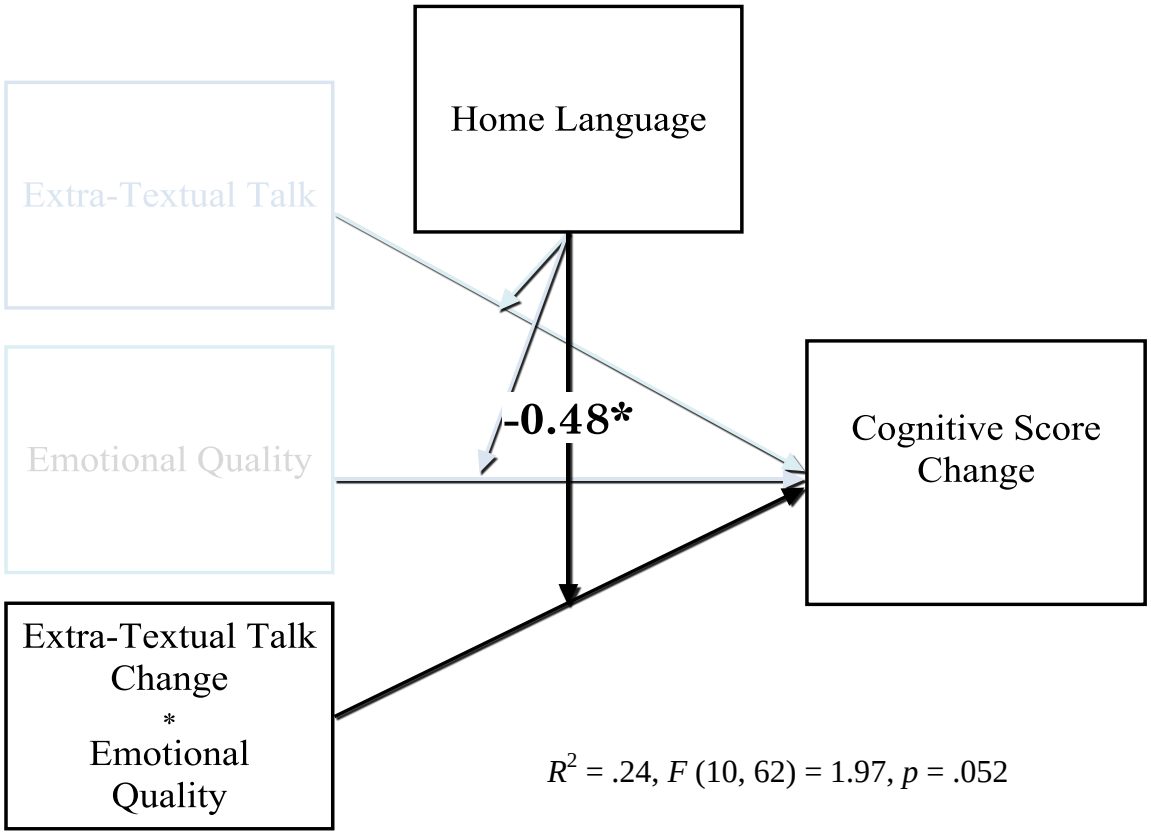
Regression Models (With Home Language) Predicting Change in Cognitive Scores

Variable	*B*	*SE B*	*β*	*t*
With Change in Extra-Textual Talk * Home Language[a]				
(Constant)	-3.34	4.05	-	-0.83
Change in Extra-Textual Talk * Home Language	0.14	0.14	0.12	0.94
Change in Extra-Textual Talk	-0.02	0.05	-0.06	-0.50
Home Language	-1.01	3.28	-0.04	-0.31
Child Gender	-3.39	2.91	-0.14	-1.17
Child Age	-0.41	0.24	-0.20	-1.67^{+}
Family Cumulative Risk	0.97	1.36	0.09	0.71
With Emotional Quality * Home Language[b]				
(Constant)	-4.67	4.12	-	-1.14
Emotional Quality * Home Language	5.31	4.48	0.16	1.19
Emotional Quality	1.26	2.48	0.07	0.51
Home Language	0.01	3.27	0.00	0.00
Child Gender	-3.24	2.85	-0.13	-1.14
Child Age	-0.31	0.24	-0.16	-1.29
Family Cumulative Risk	1.44	1.39	0.13	1.03
With Change in Extra-Textual Talk * Emotional Quality *Home Language[c]				
(Constant)	-4.37	4.06	-	-1.08
Change in Extra-Textual Talk * Emotional Quality * Home Language	-0.45	0.18	-0.48	-2.50*
Change in Extra-Textual Talk * Emotional Quality	0.19	0.07	0.40	2.70*
Change in Extra-Textual Talk * Home Language	-0.09	0.18	-0.08	-0.50

Emotional Quality * Home Language	10.45	4.77	0.32	2.19*
Change in Extra-Textual Talk	0.00	0.05	0.01	0.08
Emotional Quality	-1.32	2.76	-0.08	-0.48
Home Language	-1.42	3.19	-0.05	-0.44
Child Gender	-3.24	2.78	-0.13	-1.17
Child Age	-0.43	0.26	-0.22	-1.68^{+}
Family Cumulative Risk	2.08	1.40	0.19	1.49

[a] $R^2 = .08$, F (6, 66) = .93, p =.48; [b]$R^2 = .11$, F (6, 66) = 1.32, p =.26; [c]$R^2 = .24$, F (10, 62) = 1.97, p =.052 ***$p < .001$, **$p < .01$, *$p <. 05$, $^{+}p \leq .1$

Figure 6. Regression for Change in Cognitive Scores



Notes: This figure includes Beta weight coefficients in parentheses for all variables included as predictors in the model.

***p < .001, **p < .01, *p < .05, +$p \leq$ .1

Figure 7. Interaction Between Change in Extra-Textual Talk and Emotional Quality Predicting Changes in Cognive Scores for Home Language-English

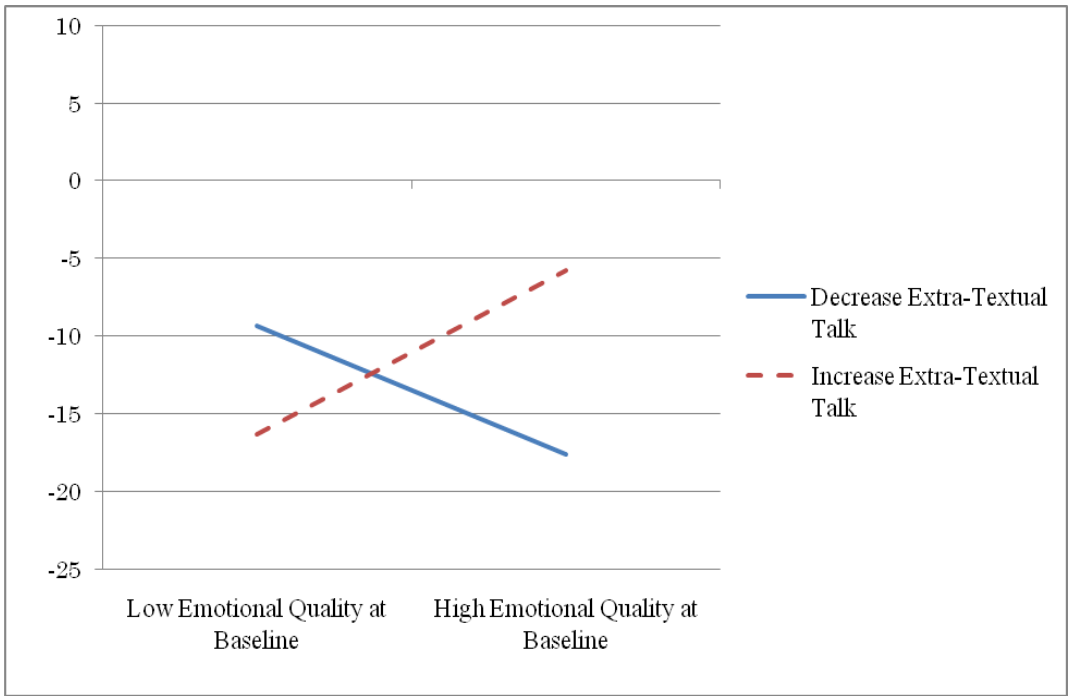
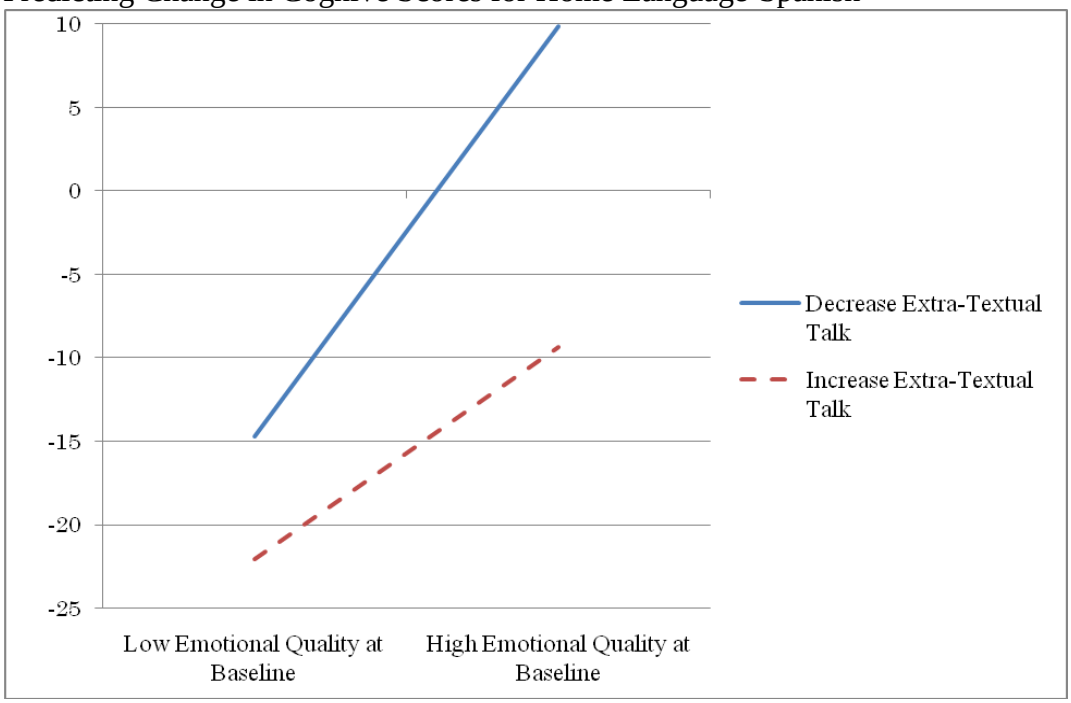


Figure 8. Interaction Between Change in Extra-Textual Talk and Emotional Quality Predicting Change in Cognive Scores for Home Language-Spanish



Criterion variable: Baseline Expressive Communication scores. First, a series of multiple regression analyses were conducted to test the contributions of (a) Extra-Textual Talk, (b) Emotional Quality, (c) the interaction between Extra-Textual Talk and Emotional Quality to baseline Expressive Communication scores. These results demonstrated the regression models did not account for a statistically significant amount of variance (as presented in Table 16). Next, a series of multiple regression analyses were conducted to explore if home language interacted with book-reading qualities to predict baseline Expressive Communication scores. These models tested the contribution of the interactions between (a) Extra-Textual Talk and Home Language, (b) Emotional Quality and Home Language, and (c) Extra-Textual Talk, Emotional Quality, and Home Language to baseline Cognitive Scores. These results demonstrated the regression models did not account for a statistically significant amount of variance; however in the model including the three way interaction between Extra-Textual Talk, Emotional Quality, and Home Language, the three-way interaction was a statistically significant predictor ($p < .05$; presented in Table 17 and Figure 9). Graphs have been provided to demonstrate the patterns of these relationships; these graphs were created using values obtained from conducting separate analyses with the two separate home language sub-groups (i.e., English and Spanish; see Figures 10 and 11). As shown in the graphs, for families who spoke English as their home language, when Emotional Quality was high, the use of Extra-Textual Talk was not related to Expressive Communication scores, but when Emotional Quality was low, the use of less Extra-Textual Talk was related to higher Expressive Communication scores. For families who spoke Spanish as their home language, when Emotional Quality was high, the use of less Extra-Textual Talk was

related to higher Expressive Communication scores, but when Emotional Quality was low, the use of more Extra-Textual Talk was related to higher Expressive Communication scores.

Table 16

Regression Models (Without Home Language) Predicting Baseline Expressive Communication Scores

Variable	*B*	*SE B*	*β*	*t*
With Extra-Textual Talk[a]				
(Constant)	106.65	3.84	-	27.75***
Extra-Textual Talk	0.03	0.05	0.06	0.53
Child Gender	-5.78	2.92	-0.22	-1.98^{+}
Child Age	-0.28	0.24	-0.13	-1.14
Family Cumulative Risk	0.99	1.35	0.08	0.73
With Emotional Quality[b]				
(Constant)	106.08	3.94	-	28.86***
Emotional Quality	1.37	2.16	0.07	0.64
Child Gender	-5.89	2.91	-0.23	-2.02*
Child Age	-0.25	0.25	-0.12	-1.02
Family Cumulative Risk	1.24	1.40	0.12	0.89
With Extra-Textual Talk * Emotional Quality[c]				
(Constant)	105.95	4.04	-	26.26***
Extra-Textual Talk * Emotional Quality	-0.05	0.08	-0.10	-0.67
Extra-Textual Talk	-0.00	0.07	-0.01	-0.06
Emotional Quality	0.96	2.49	0.05	0.39
Child Gender	-5.45	3.00	-0.21	-1.82
Child Age	-0.20	0.27	-0.09	-0.74
Family Cumulative Risk	1.39	1.47	0.12	0.95

[a] R^2 = .08, F (4, 73) = 1.58, p = .19; [b]R^2 = .08, F (4, 73) = 1.6, p =.18; [c]R^2 = .09, F (6, 71) = 1.14, p =.35

***p < .001, **p < .01, *p <. 05, $^{+}p \leq .1$

Table 17

Regression Models (With Home Language) Predicting Baseline Expressive Communication Scores

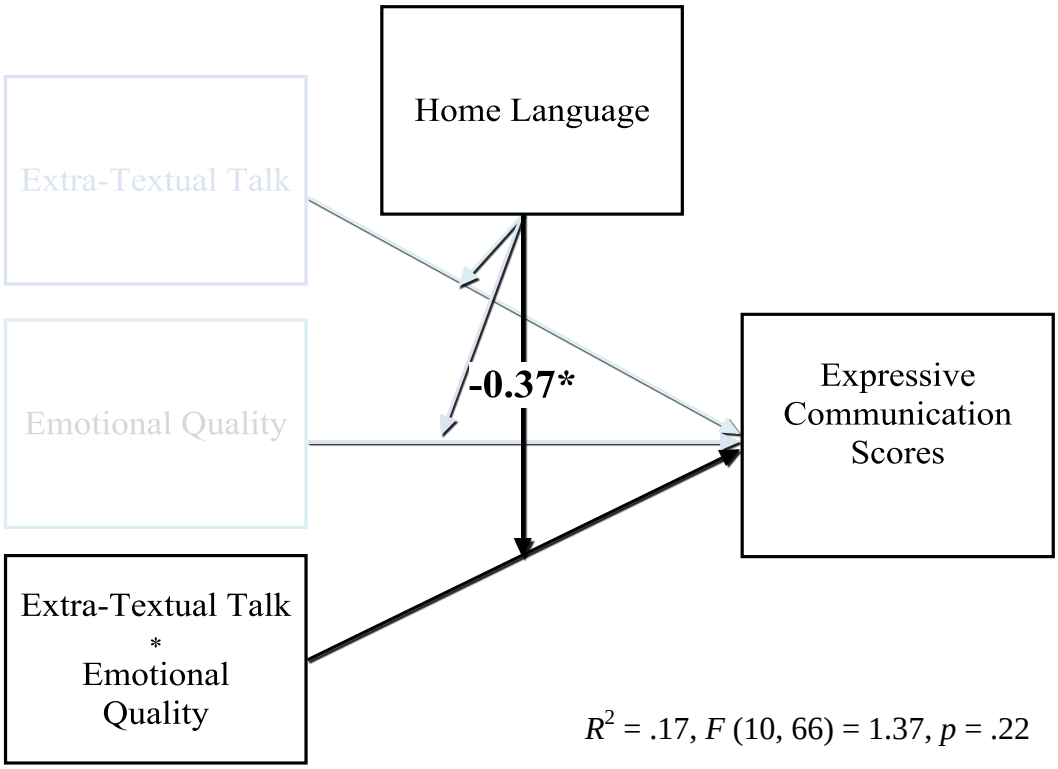
Variable	*B*	*SE B*	*β*	*t*
With Extra-Textual Talk * Home Language[a]				
(Constant)	105.02	4.08	-	25.72***
Extra-Textual Talk * Home Language	0.11	0.14	0.11	0.80
Extra-Textual Talk	-0.01	0.06	-0.02	-0.13
Home Language	3.26	3.54	0.11	0.92
Child Gender	-5.98	2.94	-0.23	-2.03*
Child Age	-0.23	0.25	-0.11	-0.93
Family Cumulative Risk	1.22	1.38	0.10	0.89
With Emotional Quality * Home Language[b]				
(Constant)	104.03	4.24	-	24.57***
Emotional Quality * Home Language	0.43	4.61	0.01	0.09
Emotional Quality	1.67	2.55	0.09	0.66
Home Language	4.64	3.36	0.16	1.38
Child Gender	-6.27	2.93	-0.24	-2.14*
Child Age	-0.23	0.25	-0.11	-0.92
Family Cumulative Risk	1.64	1.43	0.14	1.15
With Extra-Textual Talk * Emotional Quality * Home Language[c]				
(Constant)	102.46	4.38	-	23.38***
Extra-Textual Talk * Emotional Quality * Home Language	-0.34	0.17	-0.37	-2.02*
Extra-Textual Talk * Emotional Quality	0.06	0.10	0.12	0.67
Extra-Textual Talk * Home Language	-0.05	0.17	-0.05	-0.31
Emotional Quality * Home Language	-0.76	5.18	-0.02	-0.15

Extra-Textual Talk	-0.05	0.08	-0.11	-0.64
Emotional Quality	4.07	3.33	0.22	1.22
Home Language	7.73	4.08	0.27	1.90^{+}
Child Gender	-5.80	2.98	-0.23	-1.95^{+}
Child Age	0.01	0.27	0.01	0.05
Family Cumulative Risk	1.79	1.49	0.15	1.20

[a] $R^2 = .11$, F (6, 71) = 1.39, p =.23; [b]$R^2 = .11$, F (6, 71) = 1.39, p =.23; [c]$R^2 = .17$, F (10, 67) = 1.37, p =.22

***$p < .001$, **$p < .01$, *$p <. 05$, $^{+}p \leq .1$

Figure 9. Regression Model Predicting Baseline Expressive Communication Scores



R^2 = .17, F (10, 66) = 1.37, p = .22

- Child Gender (-0.23^{+})
- Child Age (0.01)
- Family Cumulative Risk (0.15)
- Home Language (0.27^{+})
- Extra-Textual Talk (-0.11)
- Emotional Quality (0.22)
- Extra-Textual Talk * Emotional Quality (0.12)
- Extra-Textual Talk * Home Language (-0.05)
- Emotional Quality * Home Language (-0.02)

Notes: This figure includes Beta weight coefficients in parentheses for all variables included as predictors in the model.

***p < .001, **p < .01, *p < .05, +$p \leq$ .1

Figure 10. Interaction Between Extra-Textual Talk and Emotional Quality Predicting Baseline Expressive Communication Scores for Home Language English

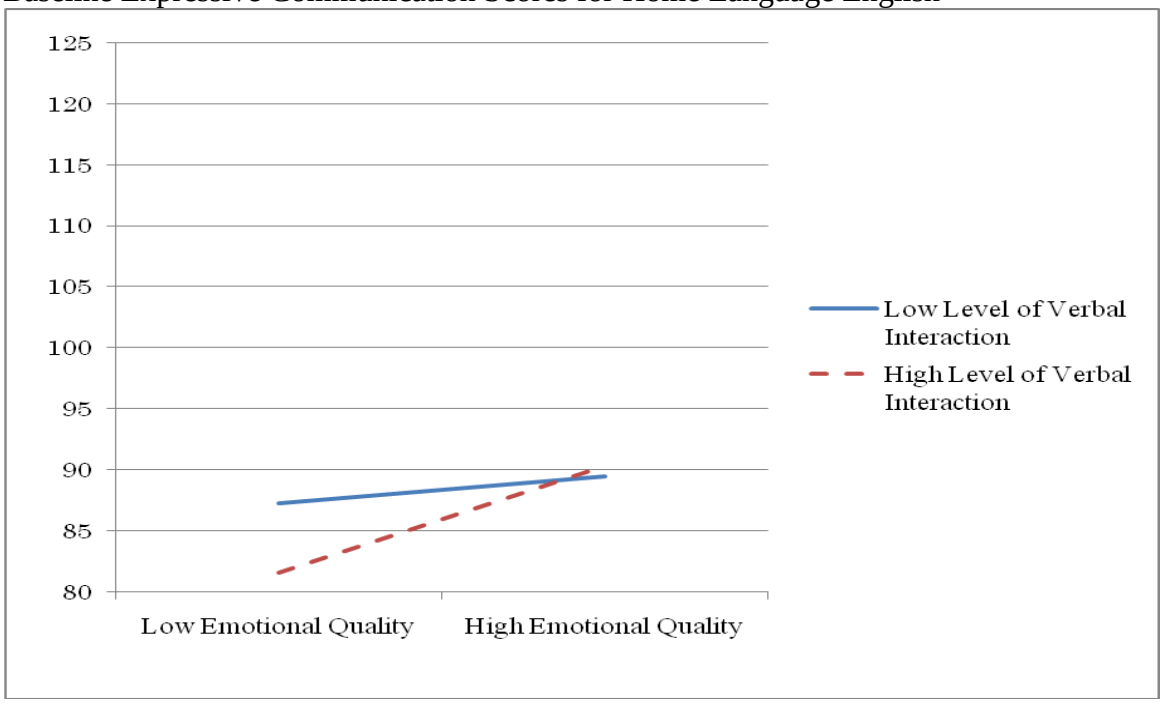
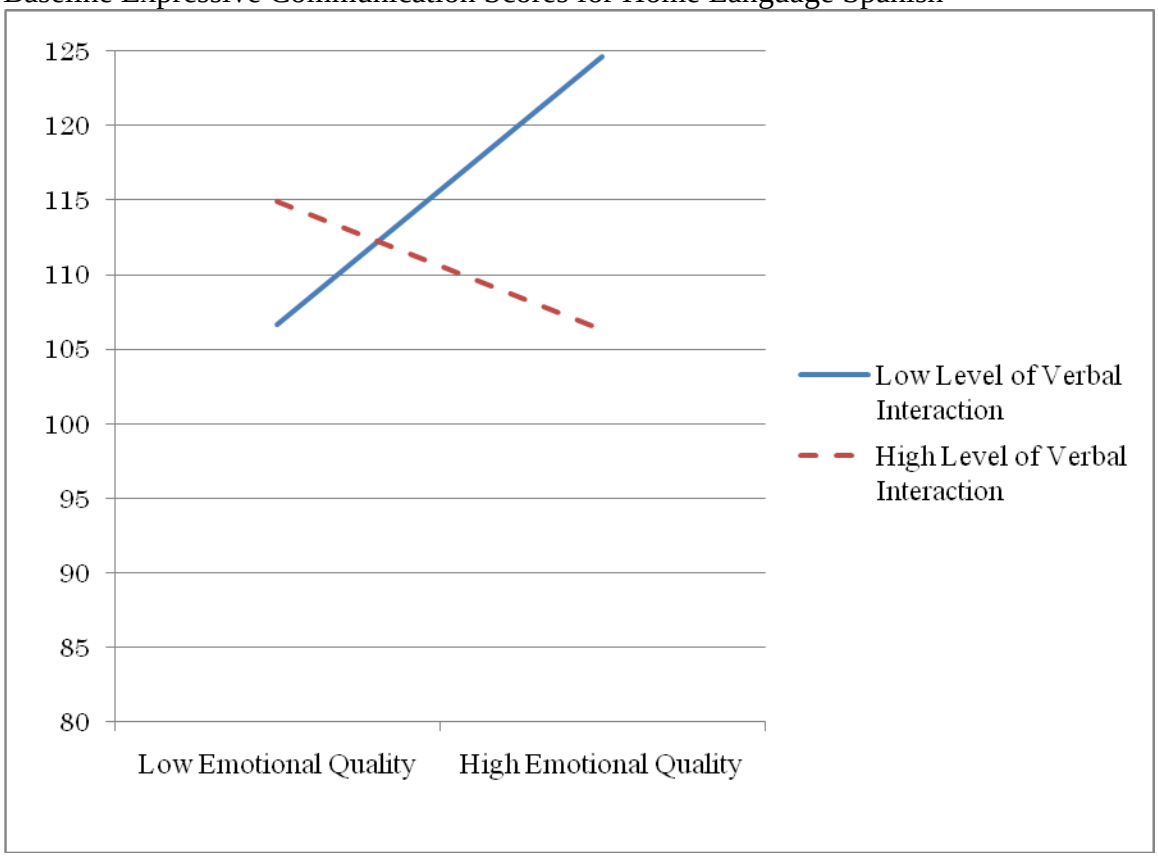


Figure 11. Interaction Between Extra-Textual Talk and Emotional Quality Predicting Baseline Expressive Communication Scores for Home Language Spanish



Criterion variable: Baseline Auditory Comprehension scores. First, a series of multiple regression analyses were conducted to test the contributions of (a) Extra-Textual Talk, (b) Emotional Quality, (c) the interaction between Extra-Textual Talk and Emotional Quality to baseline Auditory Comprehension scores. These results demonstrated the regression models did not account for a statistically significant amount of variance (as presented in Table 18). Next, a series of multiple regression analyses were conducted to explore if home language interacted with book-reading qualities to predict baseline Auditory Comprehension Scores. These models tested the contribution of the interactions between (a) Extra-Textual Talk and Home Language, (b) Emotional Quality and Home Language, and (c) Extra-Textual Talk, Emotional Quality, and Home Language to baseline Auditory Comprehension Scores (see Table 19). The model including the two-way interaction between Extra-Textual Talk and Home language accounted for a statistically significant amount of variance (Model 1 R^2 = .21, F (6, 71) = 3.15, p =.01), but the two-way interaction was not a statistically significant predictor. Additionally, the model including the two-way interaction between Emotional Quality and Home language accounted for a statistically significant amount of variance (R^2 = .26, F (6, 71) = 4.08, p =.001), but the two-way interaction was not a statistically significant predictor. Finally, the model including the three-way interaction between Extra-Textual Talk, Emotional Quality, and Home Language accounted for a statistically significant amount of variance (R^2 = .29, F (10, 67) = 2.70, p =.008); the three-way interaction approached statistical significance as a predictor (p = .10; presented in Table 18 and Figure 12). Graphs have been provided to demonstrate the patterns of these relationships; these graphs were created using values obtained from conducting separate analyses with

the two separate language sub-groups (i.e., English and Spanish; see Figures 13 and 14). As shown in the graphs, for families who spoke English as their home language, when Emotional Quality was high, the use of more Extra-Textual Talk was related to higher Auditory Comprehension scores, but when Emotional Quality was low, the use of less Extra-Textual Talk was related to higher Auditory Comprehension scores (less pronounced difference at lower levels of Emotional Quality). For families who spoke Spanish as their home language, when Emotional Quality was high, the use of less Extra-Textual Talk was related to higher Auditory Comprehension scores, but when Emotional Quality was low, the use of more Extra-Textual Talk was related to higher Auditory Comprehension scores (less pronounced difference at lower levels of Emotional Quality).

Table 18

Regression Models (Without Home Language) Predicting Baseline Auditory Comprehension Scores

Variable	***B***	***SE B***	***β***	***t***
With Extra-Textual Talk[a]				
(Constant)	94.80	4.21	-	22.52***
Extra-Textual Talk	0.08	0.06	0.15	1.36
Child Gender	-6.11	3.20	-0.21	-1.91^{+}
Child Age	-0.42	0.27	-0.17	-1.56
Family Cumulative Risk	2.88	1.48	0.22	1.95^{+}
With Emotional Quality[b]				
(Constant)	93.54	4.33	-	21.58***
Emotional Quality	3.05	2.37	0.15	1.29
Child Gender	-6.40	3.20	-0.22	-2.00*
Child Age	-0.35	0.27	-0.15	-1.31
Family Cumulative Risk	3.44	1.54	0.26	2.24*

With Extra-Textual Talk * Emotional Quality[c]				
(Constant)	94.11	4.42	-	21.29***
Extra-Textual Talk * Emotional Quality	0.03	0.09	0.04	0.33
Extra-Textual Talk	0.07	0.07	0.12	0.90
Emotional Quality	2.00	2.73	0.10	0.74
Child Gender	-6.40	3.29	-0.22	-1.95^{+}
Child Age	-0.41	0.29	-0.17	-1.41
Family Cumulative Risk	3.12	1.61	0.23	1.94^{+}

[a] R^2 = .15, F (4, 73) = 3.19, p =.02; [b]R^2 = .15, F (4, 73) = 3.14, p = .02; [c] R^2 = .16, F (6, 71) = 2.19, p =.05
***p < .001, **p < .01, *p <. 05, $^{+}p \leq .1$

Table 19

Regression Models (With Home Language) Predicting Baseline Auditory Comprehension Scores

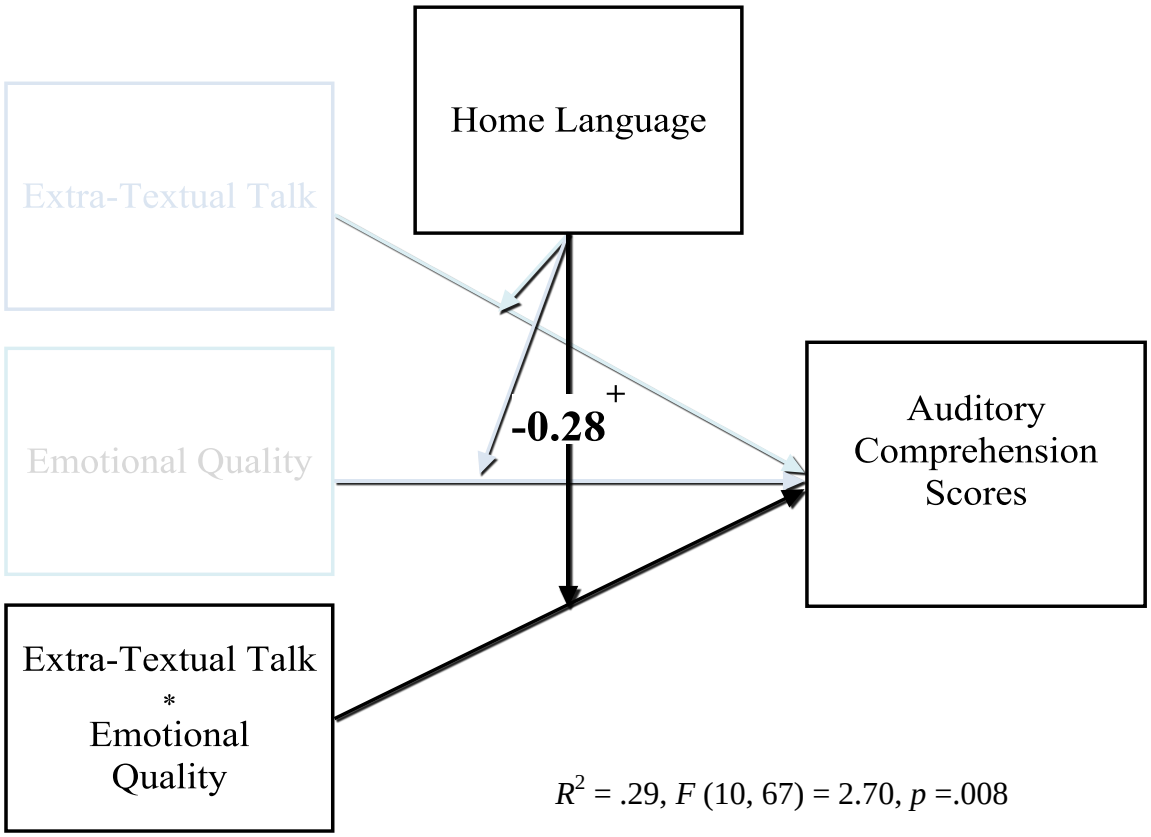
Construct	***B***	***SE B***	***β***	***t***
With Extra-Textual Talk * Home Language[a]				
(Constant)	91.42	4.37	-	20.92***
Extra-Textual Talk * Home Language	0.08	0.15	0.07	0.53
Extra-Textual Talk	0.03	0.07	0.06	0.53
Home Language	7.76	3.78	0.24	2.05*
Child Gender	-6.75	3.15	-0.23	-2.14*
Child Age	-0.36	0.26	-0.15	-1.37
Family Cumulative Risk	3.44	1.47	0.26	2.34*
With Emotional Quality * Home Language[b]				
(Constant)	89.50	4.40	-	20.36***
Emotional Quality * Home Language	7.46	4.78	0.19	1.56

Emotional Quality	1.81	2.65	0.09	0.68
Home Language	10.28	3.49	0.31	2.95**
Child Gender	-7.30	3.04	-0.25	-2.40*
Child Age	-0.29	0.26	-0.12	-1.14
Family Cumulative Risk	4.22	1.49	0.32	2.84**
With Extra-Textual Talk * Emotional Quality * Home Language[c]				
(Constant)	88.91	5.62	-	19.24***
Extra-Textual Talk * Emotional Quality * Home Language	-0.30	0.18	-0.28	-1.66^{+}
Extra-Textual Talk * Emotional Quality	0.10	0.10	0.16	1.03
Extra-Textual Talk * Home Language	-0.12	0.18	-0.10	-0.65
Emotional Quality * Home Language	7.18	5.46	0.18	1.32
Extra-Textual Talk	0.02	0.08	0.04	0.25
Emotional Quality	3.01	3.51	0.14	0.86
Home Language	13.01	4.30	0.39	3.02**
Child Gender	-7.21	3.14	-0.25	-2.29*
Child Age	-0.18	0.29	-0.07	-0.62
Family Cumulative Risk	4.01	1.58	0.30	2.54*

[a] R^2 = .21, F (6, 71) = 3.15, p =.01; [b]R^2 = .26, F (6, 71) = 4.08, p =.001; [c]R^2 = .29, F (10, 67) = 2.70, p =.008

***p < .001, **p < .01, *p <. 05, $^{+}p \leq .1$

Figure 12. Regression Model Predicting Baseline Auditory Comprehension Scores



Notes: This figure includes Beta weight coefficients in parentheses for all variables included as predictors in the model.

***p < .001, **p < .01, *p < .05, +$p \leq .1$

Figure 13. Interaction Between Extra-Textual Talk and Emotional Quality Predicting Baseline Auditory Comprehension Scores for Home Language English

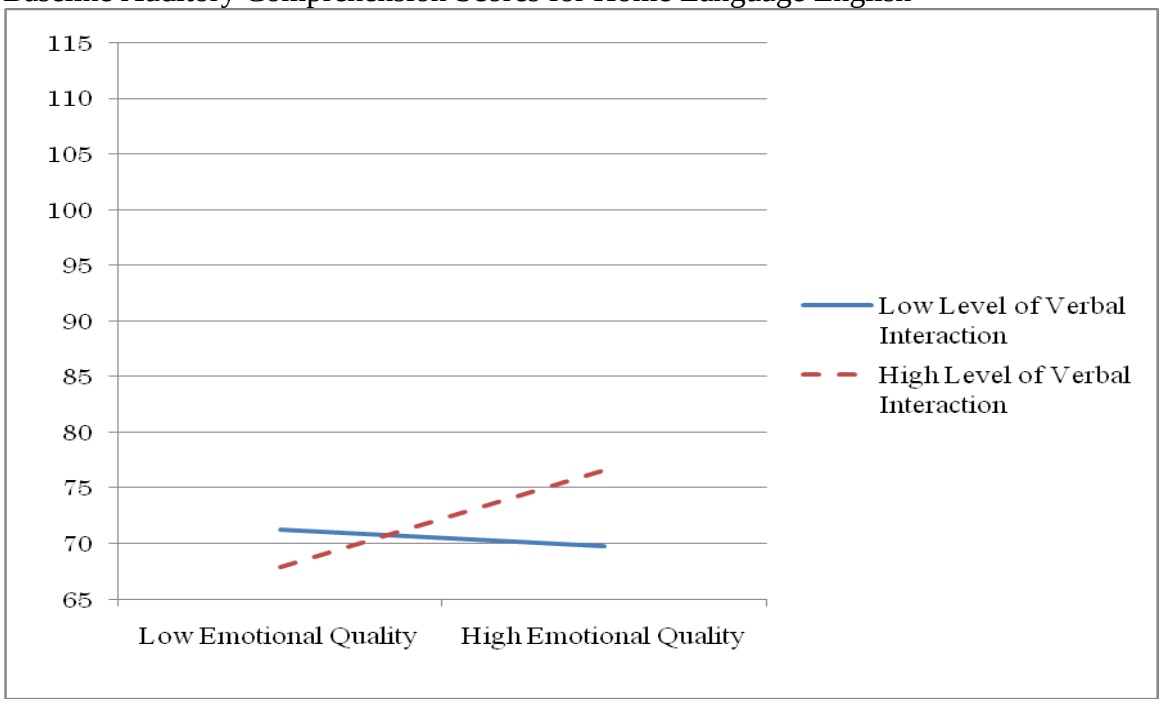
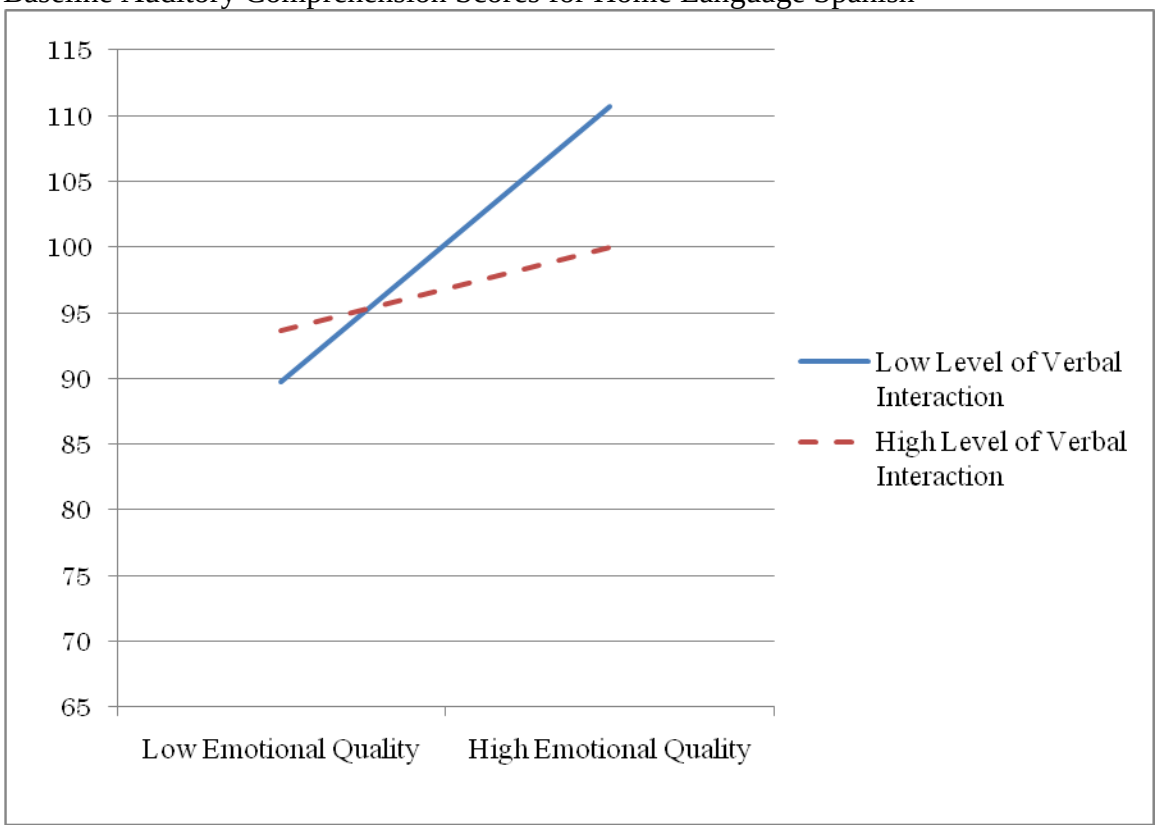


Figure 14. Interaction Between Extra-Textual Talk and Emotional Quality Predicting Baseline Auditory Comprehension Scores for Home Language Spanish



Chapter 5

Discussion

This study served to describe parent book-reading behaviors and child learning in a sample of linguistically and culturally diverse families participating in EHS in the rural Midwest. Findings indicated that the parents in the sample used a wide range of book-reading styles and behaviors. There was variation in the amount of Extra-Textual Talk that parents used and Emotional Quality of parent behavior during shared book-reading. Diversity in behaviors was observed for both families who spoke English as their home language and families who spoke Spanish as their home language. Additionally, correlation analyses suggested that the relationship between use of Extra-Textual Talk and Emotional Quality varied for families from the two home language sub-groups. There was a strong statistically significant positive relationship between these two book-reading qualities for families whose home language was English (r = .56), indicating that parents who provided a higher Emotional Quality atmosphere also tended to engage in more Extra-Textual Talk. This relationship was weaker and not statistically significant for families who spoke Spanish as their home language (r = .27), though when the Fisher r-to-z transformation test was used to evaluate the significance of the differences between the two correlation coefficients, the difference was found to not be significant (z = 1.34, p =.18). Importantly, there is limited statistical power for conducting this test due to small sample size so the finding should be interpreted with the appropriate level of caution. The relationships between the two dimensions of book-reading quality may be important for fully understanding the how book-reading behaviors relate to children's learning for families who are linguistically and culturally diverse.

One overarching goal of this study was to examine the relationships between book-reading qualities and child learning for the full sample of children. It was hypothesized that Extra-Textual Talk, Emotional Quality, and the interaction between these two qualities would predict child learning. Additionally, it was hypothesized that change in Extra-Textual Talk, baseline Emotional Quality, and the interaction between these two qualities would predict change in children's learning. Contrary to the research hypotheses, when controlling for child gender, child age, and family level of cumulative risk, none of these predictor variables predicted children's learning or change in children's learning. This indicated that relationships between parent book-reading behaviors and child learning might be more complex than could be captured by the first set of models.

A second overarching goal was to explore variations in how book-reading qualities interact and relate to child learning for families who are linguistically and culturally different. Home Language differences were considered to reflect cultural differences of families. When Home Language was introduced into regression models, the three-way interaction between Extra-Textual Talk, Emotional Quality, and Home Language contributed to predicting child learning, and the three-way interaction between change in Extra-Textual Talk, Emotional Quality, and Home Language contributed to predicting change in child learning. The regression model predicting baseline Cognitive scores accounted for a statistically significant amount of variance, and the three-way interaction was a statistically significant predictor. The regression model predicting change in Extra-Textual Talk approached statistical significance ($p = .052$) and the three-way interaction was statistically significant. The regression model predicting Auditory

Comprehension scores accounted for a statistically significant amount of variance and the three-way interaction predictor approached statistical significance. Although the regression model predicting baseline Expressive Communication scores that included the three-way interaction did not account for a statistically significant amount of variance, the three-way interaction was a statistically significant predictor.

Simple slopes tests were conducted to identify specific statistically significant differences in the effect of Emotional Quality and Extra-Textual Talk for families whose Home Language was English or Spanish on Cognitive scores, and to identify specific differences in effect of Emotional Quality and change in Extra-Textual Talk for families whose Home Language was English or Spanish on change in Cognitive scores (simple slopes tests were not completed for effects on Expressive Communication and Auditory Comprehension since these models and/or three-way interactions were not statistically significant). Findings indicated that there were statistically significant differences in the effects of Emotional Quality on Cognitive scores depending on the level of Extra-Textual Talk for families who spoke English as their Home Language ($t = 3.04$, $p < .01$), where children's Cognitive scores were highest for high Extra-Textual Talk, high Emotional Quality families; however, there were not statistically significant differences in the effects of Emotional Quality on Cognitive scores depending on the level of Extra-Textual Talk for families who spoke Spanish as their Home Language. Additionally, there were statistically significant differences in the effects of Emotional Quality on change in Cognitive scores depending on the change in Extra-Textual Talk for families who spoke English as their Home Language ($t = 3.11$, $p < .01$), where children increased in Cognitive scores most for increasing Extra-Textual Talk, high Emotional Quality

families; however, there were not statistically significant differences in the effects of Emotional Quality on change in Cognitive scores depending on the level of Extra-Textual Talk for families who spoke Spanish as their Home Language.

While there was variation in the levels of statistical significance of the models and three-way interaction predictors for the different learning outcomes, the results of the regression models involving the three-way interactions between Extra-Textual Talk (and change in Extra-Textual Talk), Emotional Quality, and Home Language predicting child learning (and changes in child learning) and the follow-up simple slopes tests (conducted only for models predicting Cognitive Scores and change in Cognitive scores) suggests that Extra-Textual Talk use and Emotional Quality interacted differently as they related to child learning for children whose Home Language was English and Spanish. The following patterns were generally observed in this study: (a) for families whose home language was English, pairing *high* Extra-Textual Talk with high Emotional Quality was related to positive child learning, and pairing *increases* in the use of Extra-Textual Talk with high baseline Emotional Quality was related to positive change in child learning; whereas (b) for families whose home language was Spanish, *low* Extra-Textual Talk was related to positive child learning, and *decreases* in the use of Extra-Textual Talk was related to positive change in child learning across levels of Emotional Quality.

These findings indicate that the differences in the effect of Emotional Quality and level of Extra-Textual Talk on Cognitive scores, and the effect of Emotional Quality and change in Extra-Textual Talk on change in Cognitive scores was significant at the $p < .05$ level only for families whose Home Language was English. In effect, it may be important to consider both Extra-Textual Talk (and change in Extra-Textual Talk) and Emotional

Quality when exploring effects of parent-child reading on cognitive scores for English-speaking families. These distinctions were not of statistically significance for Spanish-speaking families; however, it is important to note that the simple slopes analyses were conducted with limited statistical power and should be interpreted with the appropriate level of caution. Future research should explore these relationships with larger samples of families.

The original hypotheses included that pairing high Extra-Textual Talk with high Emotional Quality would relate to positive learning outcomes for children. This was the general pattern observed for the families whose Home Language was English. However, a different pattern was observed for families whose Home Language was Spanish, specifically that the use of less Extra-Textual Talk was more related to children's positive learning outcomes, as simple slopes tests did not indicate statistically significant differences in the effects Extra-Textual Talk interacting with Emotional Quality to predict Cognitive scores or changes in Cognitive scores for families who spoke Spanish as their Home Language. How might these findings be interpreted? Considering the values, beliefs, and practices commonly observed among parents of different cultural backgrounds may aid in understanding the findings of the current study and also be important for designing future research to further explore patterns of these relationships.

Using literature on Latino families and cultures, Reese (2006) described beliefs commonly adopted by Latino parents that may contrast with values embedded in interactive book sharing. Importantly, sharing books with young children may not even be a culturally relevant activity for some Latino parents. While sharing books with young children, including infants and toddlers, is commonly observed among

"mainstream" U.S. American parents, research suggests that this practice is less frequently adopted by Latino families. This is believed to be in part because of differences in the early skills that parents most value. "Mainstream" U.S. American parents often highly prioritize language and literacy skill development; Latino parents, however, may focus more on young children's moral development and good manners (Reese et al., 1995). Some research suggests that Latino parents may view reading books with children to be inappropriate, indicating that young children are not capable of understanding book content until they around the age of 5, considered to be the "age of reason" (Madding, 2002; Reese & Gallimore, 2000; Reese et al. 1995). Furthermore, the structure of one-on-one book sharing may be unfamiliar to Latino parents who may be more used to multiparty interactions (Eisenberg, 1982). Interactive book reading strategies include commenting, asking questions, encouraging the child's active participation, and following the child's lead. These behaviors may seem unnatural to Latino parents whose cultural beliefs might include that children learn from observation rather than discussion (Langdon, 1992), that children's quietness is valued while their talkativeness is viewed as discourteous and immature (Coles, 1977), and that it inappropriate for their children to initiate topics (Schieffelin & Cochran-Smith, 1984). Additionally, the practice of asking children questions to which the adult knows the answer may seem inappropriate to Latino parents; Valdés (1996) found that these types of questions were only used by Mexican Americans when teasing their children. Caspe & Melzi (2008) further described how Latino parents are more likely to prefer less interactive book sharing styles that place distance between the "reader" and the

"audience" and that corresponds with the communication style commonly observed among Latino cultural groups.

While highly interactive book sharing is commonly considered to be most supportive of children's learning, recent research by research by Caspe (2009) found that among low-income Latino families, parents' use of less interactive book-sharing styles was related to greater emergent literacy gains. These findings challenge the assumption that more interactive book reading best supports all children's learning, and suggests a need to more closely examine cultural variations in relationships between book-sharing styles and children's learning.

In the current study, the use of Extra-Textual Talk served as an indicator of interactive book sharing (i.e., the degree to which parents used interactive behaviors such as questions, feedback, comments and commentary to move beyond straight reading of the text). When interpreted in relation to research conducted by Caspe, the findings of the current study further suggest that the use of a less interactive book-reading style may be supportive of child learning for some families whose home language is Spanish.

For families whose home language was English, the use of a more interactive book-sharing style most related to positive child learning when parents provided a high quality emotional atmosphere. Why might this be observed only for the families who spoke English as their home language? While only speculative, it is reasonable to consider the possibility that using a less text-focused style of reading that that involved the use of more extra-textual talk such commenting and asking questions might have been more culturally relevant to families who spoke English as their home language. Perhaps using this culturally familiar style of interaction in the context of a warm and

engaging emotional book-sharing atmosphere allowed parents to be comfortable, confident, and effective as they provided their children with language and literacy learning opportunities. The use of the culturally familiar style of interaction may not have functioned the same in the context of a negative, un-engaging book sharing.

Again, simple slopes tests did not indicate statistically significant differences in the effects of Emotional Quality interacting with the use of Extra-Textual Talk (and change in use of Extra-Textual Talk) to predict Cognitive scores (and changes in Cognitive scores) for families who spoke Spanish as their Home Language. These tests were statistically underpowered and should be interpreted with the appropriate level of caution. However, results could be interpreted as suggesting that the use of a more text-focused style of reading that involves limited use of extra-textual talk - which may be considered as more culturally relevant and familiar for these families - may be more supportive of children's learning even when level of Emotional Quality varies.

These analyses were exploratory in nature and conducted with limited statistical power. However, the findings suggest that considering potential differences in the cultural relevance of styles of reading and how these styles interact with emotional atmospheres provided by parents whose home language is English or Spanish may have the potential to aid in understanding how children learn in the context of book reading.

Limitations and Future Directions

A major limitation of this study was that some models were tested with limited statistical power due to a small sample size. Despite the small sample size, significant findings were observed. However, these results must be interpreted with an appropriate level of caution; some important predictors may not have been identified due to lack of

statistical power. Furthermore, regression analyses conducted with small sample sizes may be more influenced by outliers. A direction for future research should be to conduct a study that would allow for examination of these same relationships in a larger sample of families.

Another limitation of the study was that grouping families based on home language may have resulted in missing important with-in group variations. Families who share a home language may differ in other important ways (e.g., country of origin) that could influence the patterns of the relationships between book-sharing qualities and child learning. Future research should more closely specify and examine the role of other demographic characteristics related to culture beyond home language.

Additionally, examination of the demographic characteristics for the two home language sub-groups demonstrates that these two groups of families differed in potentially important ways, type of risk factors to which they were exposed. For example, 71% of the parents whose home language was Spanish had less than a high school diploma versus only 33% of parents whose home language was English. However, 81% of the parents whose home language was Spanish were married/with a partner versus only 43% of the parents whose home language was English. Families also differed in the total number of cumulative risk factors to which they were exposed. Twenty-four percent of the parents who spoke Spanish as their home language versus only 15% of the parents who spoke Spanish as their home language experienced only one cumulative risk factor, and only 10% of the parents who spoke Spanish as their home language versus 21% of the parents who spoke English as their home language experienced 4-5 cumulative risk factors. Understanding differences in the living

conditions and risk factors of these families may contribute to understanding the sample of families and the patterns of relationships. Future research will include further exploring how demographic characteristics relate to book reading behaviors and children's learning.

Another limitation of the study was that it focused primarily on parent behaviors. As Fletcher and Reese (2005) describe, any parent-child book-reading interaction consists of the parent, the child, and the book. First, the current study did not examine children's behaviors. Importantly, there may be bi-directional relationships between parent and child behaviors; while it is expected that the experiences adults provide during shared book-reading influence children's learning and development, it is also likely that children with varying initial competencies, attention skills, and interest in books elicit different behaviors from their parents. Furthermore, the current study did not examine the role of the books. Since book-reading observations were collected as part of a larger study, there was no opportunity to control for the types of books or families' familiarity with the books for the purpose of the current study. The different types of books (e.g., "Touch and Feel" books, story books, bilingual books[10]) may have influenced parent and child behaviors. Furthermore, there may have been variation in parents' and children's familiarity with the books used as part of the study; when parent-child dyads opened the bag of books given to them by the research assistant, they may have found that the bag contained cherished favorites or alternatively, books that they have never before seen.

[10] The books provided to the families who spoke English as their home language and to the families who spoke Spanish as their home language were considered similar. In some cases, there were both English and Spanish versions of the same books, and in other cases, books included text in both languages.

Both book type and familiarity may be important factors for understanding the relationships between book-reading qualities and child learning. Future research focused on examining the relationships between book-reading qualities and child learning should include exploring the role of child behaviors and taking into account book type and familiarity. Future research should also include examining parents and children engaging in conversations focused on literacy and print outside of the book-reading context, such as talking about the print and pictures that appear on food labels in the kitchen or at the grocery store, or exploring the words and images on street signs and billboards. Cognitive, language, and literacy learning opportunities are not limited to occurring in the context of book-reading; exploring parents' use of instructional and emotional behaviors in a representative range of activities that provide exposure to language and literacy stimuli may lead to a more comprehensive understanding of the role of parent behaviors in children's early development.

An additional limitation of the study was that it did not consider other characteristics of the home language and literacy environment. The relationship between book-reading quality and child learning may be further understood when other factors, such as how often parents and children read books together, and how often families engage in other types of language and literacy activities (e.g., going to the library, saying nursery rhymes and singing songs), are taken into consideration. Future research should include examining other features of the home language and literacy environment and children's language and literacy socialization experiences.

The current study focused only on infants and toddlers. This age group was selected in part because less is known about the relationships between parent book-

reading behaviors and child learning for this age group, especially among low-income families. However, future research should more broadly focus on early childhood, examining how instructional and emotional qualities relate, and interact as they relate, to child learning from infancy through the preschool years.

Another future direction for research should include examining parent beliefs and values related to early literacy socialization practices. The current study suggested that the links between parents' book-reading styles and qualities and children's learning differed for families who were linguistically and culturally different. A comprehensive examination of relationships between parents' literacy socialization beliefs, values, and motivations; book-reading styles and qualities; and children's learning outcomes would allow for a more thorough understanding of the process by which children from linguistically, culturally, and socioeconomically diverse populations learn from book-sharing. This could aid in understanding why different patterns of relationships between book-reading behaviors and child learning might be observed for diverse families. This would advance understanding in the area of book-reading and literacy research, as well as have important practical implications. Understanding these patterns of relationships could inform the development of intervention approaches designed to promote high quality, culturally relevant book-sharing that supports learning through instructional and emotional behaviors. Developing and assessing the effectiveness of such interventions should be a long-term goal of this current line of research.

Conclusions

The purpose of this study was to examine the contribution of book-reading qualities, and interactions between book-reading qualities, to child learning in a sample of

low-income families with infants and toddlers from the rural Midwest. These goals focused both on understanding concurrent relationships and relationships over time, and included exploring whether patterns of relationships differed for families who spoke English as their home language and families who spoke Spanish as their home language. Correlation and multiple regression analyses demonstrated that there were no direct relationships between the instructional and emotional qualities of book sharing and children's learning. It was only when the interaction between instructional quality, emotional quality, and home language was considered that statistically significant results were observed. Though conducted with a small sample size, these findings suggest a need for additional research focused on examining these patterns of relationships in a larger sample.

This research may have significant practical implications. Book reading is widely viewed as an important activity for encouraging early learning; interventions designed to support the development of young children who are at-risk for school failure often involve encouraging parents to engage in book reading, especially "high quality" book reading, with their children. These interventions may primarily focus on instructional qualities, for example encouraging parents to provide more interactive book reading. However, results from the current study suggest that the use of instructional behaviors may be differentially related to children's learning when instruction is paired with different emotional atmospheres. Furthermore, what "works best" may be different for families who are linguistically and culturally different. A "one style fits all" approach to book reading interventions may not most effectively support children's learning. Future research should help to better "untangle" these patterns of relationships in order to inform

practice that supports linguistically and culturally diverse parents, including EHS parents, as they enrich their children's learning through instructional and emotional behaviors during book reading.

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Appendix A

Instructions and Protocol for Observation and Book-Reading Activity

Protocol for Videotaping

It is necessary to capture approximately 15-20 minutes of codeable video from these activities. Each family will differ in terms of how long it takes them to complete each task, so you will need to be flexible in how you approach each family. In some cases, you will need to make judgments about the task that is most appropriate for each family. Remember that the data you are collecting are very important, but it is important that you demonstrate respect and care for the family at all times, and provide a setting within which the family is comfortable. Be sure the camera is positioned so that the parent and child can be seen on camera.

Before the session starts, try to make parent and child feel comfortable in the new surroundings. Say to parent/ child:

Start Video Camera.

> **"We would like to have you and your child play together. To do this, I will videotape you with your child. We will provide you instructions for several different activities. We are interested only in your typical play – we are not judging you and there are no right or wrong ways to play. Each activity will last approximately five minutes. We will tell you when the activity is complete. If your child is not interested in an activity after several minutes, we will move on to the next task. If you or your child needs a break, please let us know. Do you have any questions?"**
>
> "Nos gustaría que usted y su niño/a jueguen juntos. Cuando estén haciendo esto yo los grabaré a usted y a su niño/a. Les daremos instrucciones para que hagan tres actividades diferentes. Estamos sólo interesados en los juegos típicos. No la estamos juzgando a usted. Por lo tanto, no hay maneras de jugar correctas o incorrectas. Cada actividad durará aproximadamente cinco minutos. Le diremos cuando las actividades deben de concluir. Si usted o su niño/a

necesitan un receso, por favor déjenoslo saber. ¿Tiene alguna pregunta?"

Parent-Child Book Reading

A set of books are provided in bags, arranged by age. Select two books appropriate for the age of the child. Say to the parent:

(Books include: Flower in the Garden, Touch and Feel Home, My Colores, The Very Grouchy Lady Bug, Oso pardo Oso pardo Que ves ahi? Provide English books to English-speaking families; for other families, provide books in native language and English books.)

"I would like you to sit and read with your child. Here are two books for you and your child to choose from. You can read one or both books. Please continue until I ask you to stop."

"Me gustaría que se sentara y leyera con su hijo/a. Aquí hay dos libros para que usted y su hijo/a puedan escoger. Usted puede leer sólo uno o los dos. Por favor, lean juntos hasta que yo les pida que dejen de hacerlo."

Give the parent a 1-minute warning before asking them to stop reading by saying,

"I would like you to read for about another minute with these books."

"Me gustaría que usted leyera aproximadamente por otro minuto con este libro."