

ABSTRACT

Title of Dissertation: HOME LITERACY ACTIVITIES IN LATINO IMMIGRANT FAMILIES: CONTRIBUTIONS TO TODDLERS' EXPRESSIVE AND RECEPTIVE LANGUAGE SKILLS

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The development of language is a critical component of early childhood, enabling children to communicate their wishes and desires, share thoughts, and build meaning through linguistic interactions with others. A wealth of research has highlighted the importance of children's early home experiences in fostering language development. This literature emphasizes the importance of a stimulating and supportive home environment in which children are engaged in literacy activities such as reading, telling stories, or singing songs with their parents. This study examined the association between low-income Latino immigrant mothers' and fathers' home literacy activities and their children's receptive and expressive language skills. It also examined the moderating influence of maternal (i.e., reading quality and language quality) and child (engagement during reading, interest in literacy activities) characteristics on this association. This study included observational mother-child reading interactions, child expressive and receptive language assessments, and mother- and father-reported survey data. Controlling for

parental education, multiple regression analyses revealed a positive association between home literacy activities and children's receptive and expressive language skills. The findings also revealed that mothers' reading quality and children's engagement during reading (for expressive language skills only) moderated this association. Findings from this study will help inform new interventions, programs, and policies that build on Latino families' strengths.

HOME LITERACY ACTIVITIES IN LATINO IMMIGRANT FAMILIES: CONTRIBUTIONS
TO TODDLERS' EXPRESSIVE AND RECEPTIVE LANGUAGE SKILLS

by

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Chapter 1: Introduction

Statement of the Problem

The first years of life are marked by a rapid acquisition of language that enables children to communicate their wishes and desires, share thoughts, and build meaning through linguistic interactions with others (Hoff, 2006). Early language skills are foundational for a wide array of cognitive and socioemotional developmental outcomes (Duncan et al., 2007; Phillips & Shonkoff, 2000). Accordingly, there is an extensive literature focused on understanding the factors that contribute to children's receptive (i.e., comprehension) and expressive (i.e., production) language skills in the first years of life.

A wealth of research has highlighted the importance of children's early home experiences in fostering language development. This literature, grounded in the sociocultural teachings of Bruner (1981) and Vygotsky (1978), emphasizes the importance of a stimulating and supportive home environment in which children are engaged in linguistically rich activities such as reading, telling stories, or singing songs with their parents. When mothers and fathers engage in these home literacy activities with their children they create a unique social and linguistic context that supports their children's expressive and receptive language skills (Bus, van Ijzendoorn, & Pellegrini, 1995; Raikes, Pan, Luze, Tamis-LeMonda, & Brooks-Gunn, 2006). During these home literacy activities children hear and practice rich and novel vocabulary and begin to understand the meaning of words (Fletcher & Reese, 2005; Mol, Bus, de Jong, & Smeets, 2008).

The extensive literature linking home literacy activities to children's language development has significant implications for both policy and practice, emphasizing the importance of providing children with home environments that are enriching and cognitively stimulating. Yet, this literature suffers from several limitations. First, research to date has

primarily focused on White, middle-class, and monolingual children (Hammer, Jia, & Uchikoshi, 2011) and has paid less attention to how children growing up in other sociocultural contexts develop language. One under-studied group is Latino children who are one of the largest and fastest growing ethnic minority groups in the U.S. (Stepler & Brown, 2015). Understanding if and when the early home experiences of Latino children relate to their receptive and expressive language skills may offer insight into the heterogeneity of this group and point to potential areas of intervention.

Second, the bulk of the literature on home literacy activities focuses on shared book reading (Bus et al., 1995). Other literacy activities such as storytelling or singing songs are not typically included in measures of home literacy activities. Excluding these other ways in which parents expose children to language may underestimate the early home experiences of Latino children. In many cultures reading is not normative or practiced on a regular basis with young children (Bus, Leseman, & Keultjes, 2000). In African American and Latino cultures, for example, storytelling is a much more common activity shared between parents and children (Gardner-Neblett, Pungello, & Iruka, 2012; Saxon, 2005; Tsethlikai & Rogoff, 2013). Thus, in this study, the construct of home literacy activities encompasses not only shared book reading but also singing songs and storytelling.

Third, most of the research on home literacy activities and children's language skills focuses exclusively on the frequency with which parents engage their children in these activities rather than on the quality of such activities. A smaller literature has found that mothers who engage in higher quality reading or use higher quality language are more likely to have toddlers with stronger receptive and expressive language skills (Mol et al., 2008; Rowe et al., 2008). Researchers have also found that children who are engaged and interested in literacy activities

have stronger language skills than children who are not (Deckner, Adamson & Bakeman, 2006; Farver, Xu, Eppe, & Lonigan, 2006). The limited literature examining the quality of home literacy activities has exclusively focused on direct associations without considering potential mechanisms. It is critical to examine whether the effectiveness of frequent home literacy activities on children's language skills depends on the quality of those interactions.

Fourth, most research has not tested distinct pathways to receptive and expressive language skills. The extant research examines either receptive or expressive language or combines them into a broader language construct, likely because they are moderately associated and are hypothesized to have the same pathways of influence. However, these constructs are distinct and so environmental inputs might influence them differently. For example, Schick and Melzi (2015) found that low-income Latino mothers' who read more frequently to their children had children with stronger expressive but not receptive language skills. Additional work is needed that examines differential contributions of early home literacy activities to receptive and expressive language skills.

Finally, research to date has primarily focused on maternal contributions to children's development and has paid less attention to fathers' contributions. Recent evidence suggests that most fathers are reading, singing songs, and telling stories to their children and fathers' engagement in these home literacy activities is associated, over and above mothers' engagement, with children's receptive and expressive language skills (Baker, 2013; Duursma, 2014). Research that only includes mothers may underestimate the frequency with which children are engaged in literacy activities at home.

Current Study

According to Bronfenbrenner and Morris (1998, 2006), children are embedded in multiple intersecting systems where they grow and develop through interactions with caregivers and others. This study draws on the Bioecological Model of Human Development to examine the home microsystem (i.e., *context*) during early childhood. Within the home, children are influenced by proximal and reciprocal exchanges with their caregivers (i.e., *process*). These processes are influenced by the characteristics and behaviors of children and their mothers (i.e., *person*). Mothers and children interact in multiple ways that support their development.

Grounded in the Bioecological Model of Human Development, Sénéchal and LeFevre (2002) developed a model of home literacy highlighting the contributions of home literacy activities to children's language and literacy development. The authors suggested that formal home literacy activities that focus specifically on print (e.g., teaching children about letters) promote children's literacy skills and informal home literacy activities (e.g., mother-child shared reading) provide opportunities for children to be exposed to and acquire language and therefore are central to language development.

This study, grounded in the Bioecological Model of Human Development and in the Home Literacy Model, examines the associations between Latino immigrant mothers' and fathers' home literacy activities and their toddlers' receptive and expressive language skills. This study aims to examine children's overall exposure to literacy activities at home rather than look at the unique contributions of mothers and fathers. In addition, this study examines whether maternal characteristics such as the quality of their reading and of their language skills and child characteristics such as the degree to which they are interested in literacy activities and engaged while being read to moderate these associations (for conceptual model see Figure 1).

This study used a multi-method design to collect (1) observational data of mother-child interactions during a wordless book-sharing task, (2) maternal and paternal interviews, and (3) direct child assessments. The sample includes 57 U.S. born Latino 2-year-olds and their immigrant mothers and fathers (see power analysis in Chapter 3). During the observational session, mothers and toddlers were videotaped sharing a wordless picture book. These videos were coded for children's engagement during reading (i.e., children's affect, attention, and participation), for maternal reading quality (i.e., asking wh-questions, recasting the child's language, labeling), and for maternal language quality (i.e., grammatical complexity, vocabulary diversity, and quantity of language). During the interview, mothers and fathers were asked to provide demographic information (e.g., education, employment) and to report on the frequency of their engagement in home literacy activities (i.e., reading, telling stories, and singing songs). Mothers were also asked to report on their child's interest in literacy activities. During the direct assessments, children's receptive and expressive language skills were assessed in their dominant language using the Mullen Scales of Early Learning: AGS Edition (MSEL-AGS; Mullen, 1995). This measure is nationally normed on a monolingual English sample but has been previously used with emerging bilingual Latino toddlers (e.g., Song, Tamis-LeMonda, Yoshikawa, Kahana-Kalman, & Wu, 2012). Children's expressive language skills were conceptually scored, that is children received credit for knowing a concept whether they responded in English or Spanish.

Research Questions and Hypotheses

Using a sample of low-income Latino immigrant mothers, fathers, and their toddlers, this study examined (1) the association between frequent home literacy activities and toddler's expressive and receptive language skills and (2) the moderating effects of maternal reading quality, maternal language quality, child engagement during reading, and child interest in

literacy activities on this association. Specifically, this study asked the following research questions and specified the following hypotheses:

Research Question 1: Is the frequency of home literacy activities (i.e., mother and father reading, storytelling, and singing songs) associated with toddlers' *receptive language* skills in a sample of low-income Latino immigrant families?

Hypothesis 1: Latino toddlers whose mothers and fathers engage more frequently in home literacy activities will have stronger *receptive language* skills than Latino toddlers whose parents do not.

Research Question 2: Is the frequency of home literacy activities (i.e., mother and father reading, storytelling, and singing songs) associated with toddlers' *expressive language* skills in a sample of low-income Latino immigrant families?

Hypothesis 2: Latino toddlers whose mothers and fathers engage more frequently in home literacy activities will have stronger *expressive language* skills than Latino toddlers whose parents do not.

Research Question 3: Is the association between home literacy activities (i.e., mother and father reading, storytelling, and singing songs) and Latino toddlers' *receptive language* skills moderated by maternal language quality, maternal reading quality, children's engagement during reading, and children's interest in literacy activities?

Hypothesis 3.1: The association between home literacy activities and Latino toddlers' *receptive language* skills will be stronger when mothers use higher quality language (i.e., grammatical complexity, vocabulary diversity, and quantity of language) with their children than when they use lower quality language with their children.

Hypothesis 3.2: The association between home literacy activities and Latino toddlers' *receptive language* skills will be stronger when mothers engage in higher quality reading (i.e., labels, recasts, wh-questions) than when they engage in lower quality reading.

Hypothesis 3.3: The association between home literacy activities and Latino toddlers' *receptive language* skills will be stronger when toddlers are more engaged (i.e., affectively positive, attentive, and participating) during reading than when they are less engaged during reading.

Hypothesis 3.4: The association between home literacy activities and Latino toddlers' *receptive language* skills will be stronger when toddlers are more interested in literacy activities (e.g., ask to be read to) than when they are less interested in literacy activities.

Research Question 4: Is the association between home literacy activities and Latino toddlers' *expressive language skills* moderated by maternal language quality, maternal reading quality, children's engagement during, and children's interest in literacy activities?

Hypothesis 4.1: The association between home literacy activities and Latino toddlers' *expressive language* skills will be stronger when mothers use higher quality language (i.e., grammatical complexity, vocabulary diversity, and quantity of language) with their children than when they use lower quality language with their children.

Hypothesis 4.2: The association between home literacy activities and Latino toddlers' *expressive language* skills will be stronger when mothers engage in higher quality reading (i.e., labels, recasts, wh-questions) than when they engage in lower quality reading.

Hypothesis 4.3: The association between home literacy activities and Latino toddlers' *expressive language* skills will be stronger when toddlers are more engaged (i.e.,

affectively positive, attentive, and participating) during reading than when they are less engaged during reading.

Hypothesis 4.4: The association between home literacy activities and Latino toddlers' *expressive language* skills will be stronger when toddlers are more interested in literacy activities (e.g., ask to be read to) than when they are less interested in literacy activities.

Contribution to the Field

This study adds to this existing literature on how home literacy activities help children learn language in at least six ways. First, it moves beyond examining direct associations between home literacy activities and children's language skills, as most current studies do, to examine how key contextual variables moderate this association. In particular, this study examines the possible moderating influence of the following factors that have been shown to be related to children's language skills: the quality of maternal language, the quality of maternal reading, child engagement during reading, and child interest in literacy activities. Second, this study includes fathers in its measurement of early home literacy activities resulting in a more comprehensive measure of the literacy experiences of young children at home. Because the majority of Latino children live with both their mothers and fathers (Wherry & Finegold, 2004) and because past research has shown that fathers' contributions to children's language are over and above mothers (Malin, Cabrera, & Rowe, 2014; Panscofar & Vernon-Feagans, 2006, 2010), research that includes fathers may provide a more accurate measure of children's early home experiences than research that does not. Third, this study builds on an existing literature that mostly comes from studies of how White, middle-class, and monolingual children learn language at home. The lack of research on Latino children of immigrants who grow up exposed to two languages and two cultures is particularly noteworthy because they are one of the largest and

fastest growing demographic groups in the United States (U.S.; Brown & Lopez, 2006; Krogstad & Lopez, 2014). Using a within-group approach to understand the ways in which many Latino children learn language can also uncover key strengths of both mothers and children that promote children's language skills. This type of finding contributes to an emerging literature on ethnic-minority children that emphasizes assets that programs and policymakers can build on rather than just emphasizing the challenges (Cabrera, 2013). Fifth, this study builds on the existing literature by examining contributions to children's receptive and expressive language skills. Although the pathways of influence are hypothesized to be the same, few studies have included measures of both receptive and expressive language. Finally, this study adds to the existing literature that has primarily focused on parent-child reading by examining other home literacy activities such as singing songs or telling stories. This more comprehensive measure of the home literacy environment might highlight culturally-specific ways in which Latino mothers and fathers promote their children's language skills.

Chapter 2: Review of the Literature

Most of what is known about children's language development comes from studies of White, middle-class, and monolingual children (Hammer et al., 2011). This body of research has highlighted the importance of a supportive early home environment for children but it falls short when examining children's development within a broader sociocultural context. One group that is underrepresented in research is Latino children; that is children of Latin American origin living in the United States (U.S.). This is particularly noteworthy because they are one of the largest and fastest growing demographic groups in the U.S. (Brown & Lopez, 2006; Krogstad & Lopez, 2014). By 2036, it is projected that Latino children will comprise one-third of all U.S. children. More than half of Latino children (i.e., 52%) are U.S. born children with at least one foreign-born parent (i.e., second generation). Approximately half (i.e., 48.4%) of these second generation children have a parent who has never completed high school and more than a quarter (i.e., 26%) are growing up in poverty (Fry & Passel 2009; Stepler & Brown, 2015). Given the importance of context, it is imperative to understand the early home environments of Latino children and their contributions to expressive and receptive language skills, offering insights for programs and interventions about how to allocate resources and where to build on existing strengths.

This study examines the direct association between the frequency of home literacy activities and Latino toddlers' expressive and receptive language skills. To understand how the context of children's early experiences in home literacy activities influences the development of language skills, this study tested four possible moderators: mothers' language quality, mothers' reading quality, children's interest in literacy activities, and children's engagement during reading. This chapter is organized as follows: (1) theoretical and conceptual frameworks; (2)

Latino children's language skills; (3) the link between frequent home literacy activities and children's language skills; and, (4) moderating influences on the association between home literacy activities and language skills.

Theoretical and Conceptual Frameworks

This study is guided both by the Bioecological Model of Human Development (Bronfenbrenner & Morris, 1998; 2006) and by the Home Literacy Model (Sénéchal & LeFevre, 2002).

The Bioecological Model of Human Development. According to Bronfenbrenner and Morris (1998; 2006), children are embedded in multiple intersecting environmental systems in which they relate to and interact with others. Thus, children's developmental trajectories are the result of dynamic, interactive relationships between children and their environment.

The bioecological model includes four specific aspects of human development: process, person, context, and time. *Process* refers to the interactions between the developing child and their environment and is theorized to be the primary force through which development occurs. It is theorized that children develop through proximal, reciprocal exchanges with other individuals and distal exchanges with their broader contexts. *Person* refers to the individual characteristics of the child that can shape their proximal interactions and buffer the influence of those interactions on their own development. *Context* refers to four interconnected environmental systems: the micro-, meso-, exo-, and macro-systems. The microsystem includes the primary environments in the child's life (e.g., home, school). The mesosystem contains the interaction between two or more microsystems (e.g., connections between home and school). The exosystem refers to social, governmental, and economic structural changes that indirectly influence a child by altering the microsystem (e.g., change in parental immigration status). The macrosystem is comprised of the

broader sociocultural context in which children develop (e.g., cultural beliefs and values). Finally, *time* (i.e., the chronosystem) highlights how time and history shape all the other environmental systems (e.g., developmental changes). Taken together, both proximal and distal processes vary systematically as a joint function of the characteristics of the child, the environment in which these processes unfold, and specific developmental timing.

The Bioecological Model of Human Development is typically used in research that investigates the influence of parents on children's development because it hypothesizes that children grow and develop in microsystems, of which the most important and proximal to young children is the home (i.e., *context*; Baker, 2013; Baker & Vernon-Feagans, 2015; Baroody & Diamond, 2012; Rodriguez & Tamis-LeMonda, 2011; Song et al., 2012). Within the home, children engage with their mothers and fathers in proximal, reciprocal literacy activities such as reading, singing songs, and telling stories (i.e., *process*) that promote children's expressive and receptive language skills. The degree to which frequent home literacy activities influence developmental outcomes depends on multiple factors, most centrally the quality of such interactions. In this study, indicators of the quality of home literacy activities include children's interest and engagement in literacy activities and mothers' quality of language and quality of reading (i.e., *person*).

The Home Literacy Model. Based on broader ecological theories such as those proposed by Bronfenbrenner and Morris (1998; 2006), Sénéchal and LeFevre (2002) proposed a model of home literacy highlighting the contribution of children's early home experiences to their language and literacy development. In particular, the authors differentiated between two types of home literacy activities that differentially impact children's outcomes: formal literacy activities (e.g., teaching about letters or reading) where the focus of the activity is on print itself

and informal literacy activities (e.g., parent-child shared reading) where the text is incidental (Sénéchal, LeFevre, Thomas, & Daly, 1998). Sénéchal and LeFevre suggested that informal literacy activities promote children's language skills whereas formal literacy activities promote children's literacy skills. According to Sénéchal and LeFevre, informal home literacy activities foster children's language skills because they provide a rich linguistic context in which children hear words and can practice both the production and comprehension of language. Because this study examines contributions to children's language skills it focuses on informal home literacy activities. This study builds upon the Home Literacy Model in at least three ways. First, this study includes alternative informal home literacy activities such as singing songs and telling stories that were not included in the original model. As with reading, singing songs and telling stories provide opportunities for children to be exposed to language. Second, this study examines contributions to both expressive and receptive language skills. The Home Literacy Model only highlights contributions to children's receptive language skills. Finally, this study examines moderating influences that might strengthen the contribution of maternal and paternal reading, singing, and storytelling to children's receptive and expressive language skills.

Thus, this study is informed by an ecological perspective that mothers and fathers influence their children's development through interactions with them and by the Home Literacy Model that home literacy activities are central to the development of language.

Latino Children's Language Skills

Developing language is a chief milestone of early childhood (Hoff, 2006). Language allows children to understand the intentions of others, share thoughts, and engage with the world around them. Throughout the first years of life, children learn to both express themselves (i.e., expressive language) and understand others (i.e., receptive language). Early receptive and

expressive language skills provide a critical foundation for later academic and socioemotional functioning (Morgan, Farkas, Hillemeier, Hammer, & Maczuga, 2015).

A handful of studies using national data suggest that, on average, Latino children's early receptive and expressive language skills are less advanced than those of White children (Halle et al., 2009; Klein, Aikens, West, Lukashanets, & Tarullo, 2013; Padilla, Boardman, Hummer, & Espitia, 2002; Pan, Rowe, Spier, & Tamis-LeMonda, 2004). For example, Padilla and colleagues (2002) examined receptive vocabulary differences in a national sample of 3- and 4-year-old Mexican American (N=488), White (N=2087), and Black children (N=1135) using data from the National Longitudinal Survey of Child Data (NLSY-CD). Children's receptive vocabulary was directly assessed using the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997) and their mothers reported on their sociodemographic characteristics including SES, generational status, age, household context, and healthcare utilization. The findings revealed, without any controls in their model, that Mexican American and Black children scored, on average, 25.95 and 31.25 points, respectively, lower than White children. These differences lessened but did not disappear altogether after controlling for sociodemographic characteristics. The difference between White and Mexican American children's vocabulary scores lessened even further (i.e., by 10%) after accounting for parents' immigrant status. This might be in part because children of immigrants were only assessed in their dominant language and were not given credit for concepts they also knew in their less dominant language (i.e., conceptual scoring was not used).

Pan and colleagues (2004) assessed children's receptive and expressive vocabulary skills in a diverse sample of low-income Black (n=31), Latino (n=24), and White (n=47) children (n=105) participating in the Early Head Start Research and Evaluation Project. Mothers reported on their children's expressive vocabulary at age two using the short form version of the

MacArthur Communicative Development Inventory (Fenson et al., 2000). The following year at age 3, children's receptive vocabulary skills were directly assessed using the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997). Comparisons across ethnic groups found that, controlling for child age, both Latino and Black children's expressive and receptive vocabularies, on average, were lower than those of White children. It is important to note that this analysis did not account for differences in SES. As with Padilla and colleagues (2002), this study also assessed children only in their dominant language and therefore may underestimate the vocabularies of Latino children who know two languages.

Similarly, Halle and colleagues (2009) examined vocabulary differences across ethnic groups using data from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), a nationally representative study of U.S. children born in 2001. When children were approximately two years of age their receptive and expressive vocabularies were assessed using the Bayley Short Form-Research Edition (BSF-R) mental scale (Bayley, 1993). The findings revealed that Latino children, on average, had lower receptive ($d=-.73$) and expressive ($d=-.79$) vocabularies than White children. The authors also found that children growing up in Spanish-speaking homes, on average, had lower receptive ($d=-.66$) and expressive ($d=-.75$) vocabularies than children growing up in English-speaking homes. This study assessed children's language skills in their dominant language and therefore did not account for language skills in their non-dominant language. Further, these effect sizes do not control for SES or any other contextual factors that may explain the vocabulary gap.

Klein and colleagues (2013) examined 3- and 4-year old children's receptive and expressive vocabulary skills using data from the Family and Child Experiences Survey (FACES 2009), a nationally representative sample of children enrolled in Head Start for the first time in

the fall of 2009. All children's receptive vocabulary skills were measured using the PPVT-4 in English (Dunn & Dunn, 2007). Children's expressive vocabulary skills in English and when appropriate, in both Spanish and English (i.e., conceptually scored) were assessed using the Expressive One Word Picture Vocabulary Test (EOWPVT; Brownell, 2000). The findings revealed that upon entry to Head Start, Latino children, on average, had lower receptive vocabulary skills ($M=77.5$) than White children ($M=92.5$) and lower expressive vocabulary skills ($M=75.9$) than White children ($M=86.7$). While children's expressive vocabulary assessment was conceptually scored, this study did not account for any sociodemographic variables that may account for the remainder of the gap.

Researchers have used these findings to conclude that young Latino children are more likely to have expressive and receptive language difficulties than White children. However, this conclusion might be overstated for several reasons. First, much of this literature does not account for SES and confounds it with ethnicity, suggesting that language difficulties might be due to SES rather than to ethnicity per se. Second, many young Latino children, particularly those with immigrant parents, are exposed to two languages, that is Spanish and English (Winsler et al., 2014). Much of the literature on Latino children's language skills has relied on assessments normed on monolingual children that assess children's language skills in their dominant language or only in English (Hoff et al., 2012). Studies have shown that when children learning two languages are tested conceptually (i.e., they are assessed on their expressive vocabulary knowledge combined across two languages) their vocabularies are the same size and demonstrate the same pattern of growth as the vocabularies of children only learning one language (Pearson, Fernandez & Oller, 1993; Pearson, Fernandez, Lewedeg, & Oller, 1997). Third, few studies have assessed Latino children's language skills at multiple developmental time-points and the few that

do suggest that they may catch up to their White peers who only speak one language by the end of preschool (Hammer, Lawrence, & Miccio, 2008). Finally, findings that rely on group mean differences between White children and Latino children do not reflect the heterogeneity in this population. Additional research is needed to explore the considerable variability in Latino children's expressive and receptive language skills.

Home Literacy Activities

This section begins with a brief discussion of how the construct of home literacy activities has been measured in the literature. It then continues with a review of the literature on the home literacy activities of Latino children, and ends with a review of the literature that links home literacy activities to children's receptive and expressive language skills.

Measurement. Researchers use a variety of terms to refer to the activities parents engage in at home to support their children's language skills. These terms include: informal home literacy activities (Sénéchal & LeFevre, 2002) home learning activities (e.g., Giallo, Treyvaud, Cooklin, & Wade, 2013), language and literacy practices (e.g., Sims & Coley, 2015), cognitive stimulating activities (Cabrera, Shannon, West, & Brooks-Gunn, 2006) and home literacy involvement (e.g., Baker, 2013). In this study the term home literacy activities is used to refer to the activities (e.g., reading, singing songs, telling stories) that mothers and fathers engage in with their children at home that provide opportunities for rich language exposure. Home literacy activities are typically measured with one survey item that asks parents, predominantly mothers, to report how often they read with their children (e.g., Duursma & Pan, 2011). Other researchers have gone beyond reading to include singing songs and telling stories in measures of home literacy activities because these activities also provide opportunities for parents to linguistically engage their children (e.g., Baker, 2013). The inclusion of singing songs and telling stories might

produce a more appropriate measure for low-income Latino immigrant parents, many of whom have reading difficulties of their own or for whom parent-child reading is not a culturally normative activity (Bus et al., 2000). Some studies have used the activity items separately (e.g., Sims & Coley, 2015) and others have used them as one scale (e.g., Baker, 2013, $\alpha = .61$). Grounded in the Home Literacy Model, this study aims to assess children's overall exposure to literacy activities at home, regardless of whether children are engaged in these activities with their mothers or fathers. Thus, this study assessed home literacy activities by creating a composite measure of how often mothers and fathers read, told stories, and sang songs with their children.

Home literacy activities in Latino families. A handful of studies have found that Latino mothers and fathers are less likely than White mothers and fathers to read with their young children (Bradley, Corwyn, McAdoo, & Garcia Coll, 2001; Duursma, Pan, & Raikes, 2008; Raikes et al., 2006). Using data from the National Longitudinal Survey of Youth, Bradley and colleagues (2001) examined White, Latino, and African American mothers' reports of how frequently they read to their infants and toddlers. Bradley and colleagues found that White mothers were more likely to read frequently with their young children than African American and Latina mothers. That is, 63.7% of White mothers compared to 37.9% of African American and 34.9% of Latina mothers reported reading to their children at least three times per week. This finding did not control for SES but held when comparing mothers across ethnic groups that were in and out of poverty. Similarly, Raikes and colleagues (2006), using data from the Early Head Start Research and Evaluation Project, longitudinally examined mother-child reading frequency in a diverse sample of low-income children ($N=2,581$) and their mothers. Mothers reported how often they read to their children when their children were 14-months, 24-months, and 36-months

of age. The findings revealed that throughout early childhood, White, African American and English-speaking Latina mothers were more likely to read and more likely to have children's books in the home than Spanish-speaking Latina mothers. While this was conducted with an entirely low-income sample, SES was not controlled for in the analysis. Duursma and colleagues (2008), also using data from the Early Head Start Research and Evaluation Project, examined correlates of father-child reading frequency. The findings revealed that White fathers of 24 month-old children were more likely to read frequently to their children than Black or Latino fathers. For example, 17% of White fathers compared with 5% of Black and 7% of Hispanic fathers reported reading daily with their 24-month-old children. Further, the findings also revealed that fathers who spoke English at home were more likely to read frequently with their children than fathers that spoke Spanish at home. That is, 24% of fathers who spoke English reported reading daily with their child compared to just 3% of fathers who spoke Spanish. As with the aforementioned studies, this study did not account for SES.

Taken together, these findings might suggest that Latino children, particularly those in homes where Spanish is spoken, are engaged in fewer home literacy activities than children from other ethnic groups. This conclusion may not be accurate for at least three reasons. First, it is important to note that none of these studies controlled for SES in their analyses. Second, these studies only reflect mean level differences and don't highlight the large heterogeneity among Latino mothers and fathers. In fact, evidence from a national sample suggests that the majority of Latina mothers report reading and telling stories to their children at least several times per week (Barrueco, Lopez, & Miles, 2007). Third, some research suggests that reading is not a universally normative practice and that Latino parents or low-income parents may be engaging in other home literacy activities (e.g., singing songs, telling stories) that are not as commonly

measured in the literature. This hypothesis is supported by qualitative research that suggests Latina mothers have a rich storytelling and singing tradition (Saxon, 2005). However, few studies have examined parental storytelling and singing, specifically among Latino families. Additional research is needed that looks within-group at home literacy activities in Latino families.

Home literacy activities and children's language skills. When parents read, tell stories, or sing songs with their children they provide opportunities for children to hear and practice new language, repetition, and rhyming. Research grounded both in the Bioecological Model of Human Development (e.g., Panscofar & Vernon-Feagans, 2006; Raviv, Kessenich, & Morrison, 2004; Rodriguez & Tamis-LeMonda, 2011) and the Home Literacy Model (e.g., Sénéchal & LeFevre, 2014; Sparks & Reese, 2013), has shown consistent associations between home literacy activities and children's receptive and expressive language skills (Bus et al., 1995; Gardner-Neblett et al., 2012; Roberts, Jergens, & Burchinal, 2005).

Most research on the contribution of home literacy activities to children's language skills has focused on parent-child reading (e.g., Duursma et al., 2008; Duursma, 2014; Raikes et al., 2006). Two decades ago, Bus and colleagues (1995) conducted a meta-analysis to determine the impact of parent-child reading frequency on preschoolers' language growth. The authors included 16 longitudinal studies that examined how often parents read with their children and its association with children's expressive or receptive language growth. These studies were predominantly conducted with small convenience samples of White, middle-class mothers. The findings revealed a consistent effect of parent-child reading frequency on children's language growth ($d=.67$) and found that this association did not vary across socioeconomic groups. This meta-analysis did not differentiate between studies focused on expressive language growth and

on receptive language growth, it did not include studies with fathers, and it did not explore this association in ethnically diverse samples.

Since that time, findings linking parent-child reading to language skills have been replicated across diverse ethnic groups and with both mothers and fathers. For example, Raikes and colleagues (2006) examined the association between maternal reports of reading frequency and children's receptive language skills at 36-months of age in an ethnically and linguistically diverse sample of low-income children and their mothers participating in the Early Head Start Research and Evaluation Project. Mothers reported how often they read to their children at 14-, 24-, and 36-months and children's receptive language skills were assessed in their dominant language at 36-months using the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997). English speaking mothers, across all ethnic groups, who reported reading daily to their children at 14-, 24-, and 36-months were more likely to have children with stronger receptive language skills at 36 months than children of mothers who did not read daily ($\beta=.14$). Spanish speaking mothers who reported reading daily at any of the three time points were more likely to have children with stronger receptive language skills at 36 months than children of mothers who did not read daily ($\beta=.21$).

Another study by Duursma and colleagues (2008), using the same dataset, was conducted to examine the longitudinal association between the frequency of father-child reading and children's receptive vocabulary. Fathers were interviewed when their children were approximately 24 months of age about how often they read with their child and children's receptive vocabulary skills at 36-months of age were assessed using the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997). The findings revealed that fathers' reading frequency at 24 months was only predictive of their 36 month-old children's receptive vocabulary when they

had completed at least a high school degree. This finding is consistent with research showing that more educated fathers use more complex language when talking with their children, which in turn predicts language skills (e.g., Malin, Karberg, Cabrera, Rowe, Cristofaro, & Tamis-LeMonda, 2012). More recently, Duursma (2014) examined the link between maternal *and* paternal reading frequency and children's early receptive language skills in a sample of low-income toddlers (N=430) participating in the Early Head Start Research and Evaluation Project. Both mothers and fathers reported on how often they read to their 24-month-old children (*1=more than once a day, 6=never*) and at 36 months, children's receptive language skills were assessed using the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997). Duursma found that while mothers reported reading more frequently to their children than fathers, more than half (i.e., 55%) of fathers reported reading at least once a week to their child. Further, fathers' but not mothers' reading frequency at 24 months predicted their children's receptive language skills at 36 months ($\beta=.14$). This finding highlights the importance of including both mothers and fathers in research.

Although fewer in number, recent studies examining the contribution of parental singing songs and telling stories also show an association with language skills (Baker, 2013; Sims & Coley, 2015). Baker (2013) examined the longitudinal association between home literacy activities at 24 months and children's emergent language and literacy skills in preschool using a nationally representative subsample of data (N=5190) from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), a nationally representative sample of children born in 2001. Mothers and fathers reported on the frequency with which they read, sang songs, and told stories to their children and the number of books in their homes (i.e. home literacy environment). Parents also reported on a number of sociodemographic characteristics (e.g., marital status, race).

When children were in pre-school their emergent language and literacy skills were directly assessed with an assessment that tapped English oral language skills, phonological awareness, letter and word sound knowledge, print conventions, word recognition and receptive and expressive vocabulary. Hierarchical regression analyses revealed that, after controlling for sociodemographic characteristics, mothers' and fathers' engagement in home literacy activities were independently linked with children's emergent language and literacy skills ($\beta=.10$ for both mothers and fathers). Sims and Coley (2015), also using data from the ECLS-B, examined the association between mothers' and fathers' early engagement in reading, singing songs, and telling stories and children's English expressive language and emergent literacy skills at kindergarten. Mothers and fathers reported on their engagement in reading, singing songs, and telling stories when their children were 9-months and 24-months of age and when their children were in preschool. Measures across timepoints were combined to form cumulative measures for each of the three literacy activities, separately for mothers and fathers. Children's expressive language skills and emergent literacy skills were assessed in English at kindergarten entry. The findings revealed that maternal, but not paternal, singing and reading were positively associated with children's kindergarten expressive language and emergent literacy skills. Both of the aforementioned studies assessed children's skills in English and did not look within group at the Latino subsample. Moreover, these studies reported small effect sizes. However, they both included both mothers and fathers and highlight the potentially important role of home literacy activities in fostering Latino children's language skills.

Taken together these studies suggest that mothers and fathers who read, tell stories, and sing songs with their children more frequently are more likely to have children with stronger receptive and expressive language skills than children of parents who do not. These studies are

predominantly longitudinal and are based on socioeconomically, linguistically, and ethnically diverse samples. However, few studies have included both mothers and fathers and therefore the literature has largely been unable to discern the joint contribution of maternal and paternal literacy activities to children's language skills. In addition, the effect sizes reported in these studies are small. This might be an artifact of measurement, specifically a reliance on survey items that capture the frequency rather than the quality of home literacy activities.

Home literacy activities and Latino children's language skills. Only a handful of studies have looked within-group to specifically investigate the contribution of home literacy activities to Latino children's language skills (Farver, Xu, Eppe, & Lonigan, 2013; Lewis, Sandilos, Hammer, Sawyer, & Mendez, 2015). This is an important omission in light of the unique cultural and contextual conditions in which Latino children develop. One notable exception, a study of low-income Latina (85% immigrant) mothers and their preschoolers (N=392) by Farver and colleagues (2013) examined the association between home literacy activities and children's expressive language skills. Mothers reported how often they engaged in informal and formal literacy activities with their child (e.g., reading, teaching about the alphabet), home literacy resources (e.g., books in the home), how often the child engaged in literacy activities with a sibling (e.g., sibling-child reading), acculturation, and a number of demographic characteristics. Children's expressive language skills were assessed in both English and Spanish. All analyses controlled for children's age, children's nonverbal cognitive ability, parents' education levels and mothers' acculturation. The findings revealed that mother-child literacy activities, sibling-child literacy activities, and home literacy resources were all associated with children's English language skills. However, only mother-child literacy activities were associated with children's Spanish language skills. The findings highlight the importance of

home literacy activities for children's language skills both in English and in Spanish over and above key sociodemographic characteristics. This study advanced the literature by examining children's language skills in both Spanish and English rather than examining only the child's dominant language or only the child's English language skills.

A recent study by Lewis and colleagues (2015) examined the association between children's home language and literacy experiences and their receptive vocabulary and oral comprehension skills in a sample of low-income Latina mothers and their dual language learning preschoolers (N=93). Mothers reported on children's language exposure in Spanish and English and their engagement in home literacy activities (i.e., frequency of reading, storytelling, and teaching activities). Children's Spanish and English receptive language abilities were assessed using the Picture Vocabulary and Oral Comprehension subtests of the Woodcock-Munoz and the Woodcock Johnson III Tests of Achievement (Woodcock, McGrew, & Mather, 2001). Findings from hierarchical regression analyses revealed that, after accounting for maternal education and children's language exposure, mother-child reading frequency was positively associated with children's Spanish, but not English, receptive vocabulary and oral comprehension skills. Mothers' frequency of storytelling, over and above the other study variables, was associated with children's English oral comprehension. The findings highlight the need for examining multiple types of home literacy activities and their differential contribution to Latino children's language skills.

Similarly, Schick and Melzi (2015) examined parents' home literacy activities and their association with preschoolers' language, literacy, and socio-emotional skills in a sample of low-income Latino parents (majority mothers of Mexican origin) and their preschool-aged children (N=127). At the start of the pre-school year, parents reported on the home literacy activities they

engage in with their children (e.g., frequency with which books are read to child, pointing out words on food labels or signs on the street). At the end of the preschool year, children's print-related skills (i.e., letter recognition and concepts about print), expressive and receptive language skills (assessed in their dominant language), and socio-emotional skills (i.e., attention/impulse control and emotion regulation) were assessed. Children's narrative skills (i.e., literate language and story grammar) were also assessed from a task in which children were asked to share wordless-picture book with a researcher. Multiple regression analyses, controlling for child's baseline skills, age, and household size, revealed that parents who read more frequently with their children were more likely to have children with stronger print-related skills ($\Delta R^2 = .04$), expressive language skills ($\Delta R^2 = .06$), and emotion regulation ($\Delta R^2 = .04$).

Taken together these findings suggest that home literacy activities help to explain variability in Latino children's receptive and expressive language skills. However, research on the early home experiences of Latino children has a number of important limitations. First, the existing literature has not been consistent in its measurement of home literacy activities. Studies include a wide array of parent-child activities but few have included activities such as singing or telling stories that may be more prevalent among low-income or Latino families. Incorporating additional home literacy activities may produce a more accurate measure of the linguistically rich activities Latino children are engaged in at home. Second, of the few studies focused on Latino children, most have focused on the contribution of mothers. This is a particularly important omission given that most Latino children live with both their mothers and fathers (Wherry & Finegold, 2004). Third, the literature has largely not incorporated the best practice of conceptual scoring; rather most studies assess children in their dominant language or only in English. Fourth, few studies have controlled for SES. Given the importance of SES for children's

development it is critical to include measures of SES in future research in order to discern the independent impact of home literacy activities on children's language skills. Finally, the literature reports small effect sizes. Examining processes or mechanisms that explain under what conditions home literacy activities most effectively foster the receptive and expressive language skills of Latino children is critical to advance this literature.

Moderating Influences

Although there is extensive research that frequent engagement in home literacy activities is important for children's expressive and receptive language skills, the mechanisms that explain why this occurs are less clear. Scholars have begun to investigate the context in which children and their mothers engage in home literacy activities for possible explanations.

Maternal reading quality. Going beyond the frequency of home literacy activities, scholars have begun to focus their attention on the quality of literacy activities that mothers engage in with their children. There are multiple ways to measure the quality of reading including dialogic reading. The principles of dialogic reading are grounded in sociocultural theories of development and emphasize the need for adults to appropriately scaffold children during shared reading and provide engaging opportunities for children to hear language (Whitehurst et al., 1994). Dialogic reading emphasizes, among other things, asking children who, what, where, when, or why questions (i.e., wh-questions; "what is the boy doing?") and repeating and expanding upon what the child says (e.g., "yes, that is a frog.") with the goal of encouraging children to become active participants in the interaction.

The seminal work in this field demonstrated the impact of a dialogic reading intervention on preschoolers (N=167) enrolled in Head Start. Whitehurst and colleagues (1994) conducted an experimental intervention in which they trained both parents and teachers to use dialogic reading

strategies using a combination of videos, role-playing, and discussion. Children's receptive and expressive language skills were tested pre- and post-intervention using the PPVT-R (Dunn & Dunn, 1981), the EOWPVT (Gardner, 1981), and the expressive subscale of the Illinois Test of Psycholinguistic Abilities (ITPA; Kirk, McCarthy, & Kirk, 1968). These measures were then combined to form one language outcome measure. The findings revealed a large association between at home compliance with the intervention and children's language skills ($r = .51$) highlighting the potential importance of dialogic reading in the home. The contribution of dialogic reading has been consistent across a wide array of studies and a meta-analysis reported a moderate effect ($d=.57$) of dialogic reading on children's expressive vocabulary, particularly for 2-3 year old children (Mol et al., 2008). Dialogic reading has also been experimentally shown to improve expressive language skills, specifically among low-income children with language delays (e.g., Hargrave & Sénéchal, 2000).

Some evidence suggests that dialogic reading may be more impactful for children's expressive than children's receptive language skills. Sénéchal (1997) examined the differential effects of dialogic reading on young children's expressive and receptive vocabulary in a sample of three- and four-year-old middle-class White and Asian children ($N=30$). Children were randomly divided into one of three conditions: single reading (i.e., book was read to them once), repeated-reading (i.e., book was read three times), and questioning (i.e., book was read three times and were asked to label target items with novel words). Children's receptive vocabulary was assessed using a test designed by the author similar to the PPVT-R (Dunn & Dunn, 1981). Children's expressive vocabulary was assessed through a task that asked children to label target items pictured in the storybook. The findings revealed that, on average, children in the repeated reading condition had stronger receptive and expressive vocabularies than children in the single

reading condition but weaker receptive and expressive vocabularies than children in the questioning condition. Sénéchal then tested whether the magnitude of these effects differed for the receptive and expressive vocabulary assessments. The analysis revealed similar effects of the repeated reading condition on both receptive and expressive vocabulary but stronger effects of the questioning condition on children's expressive vocabulary than on their receptive vocabulary. That is, children's expressive vocabulary performance in the questioning condition was 3.7 times superior to that of children in the repeated reading condition whereas children's receptive vocabulary performance was 1.2 superior. These findings suggest that dialogic reading may be more beneficial for children's expressive than receptive language skills.

Despite the broader literature's emphasis on dialogic reading, the literature with Latino samples has operationalized reading quality in a number of different ways. For example, Boyce and colleagues (2004) examined the association between low-income, immigrant Latina mothers' quality of reading and their 3-year old children's expressive vocabulary skills. Mothers (N=47), the majority of whom were born in Mexico, were provided with three children's books and videotaped sharing the books with their children for fifteen minutes. The quality of reading was coded for mothers' enhancement of child's attention to text (e.g., sustaining child's interest and attention), promotion of interactive reading and comprehension (e.g., asking questions about the books' content) and literacy oriented strategies (e.g., asking child to recall information from the book). Both mothers' and children's expressive vocabulary was assessed using the Woodcock-Muñoz Language Survey (WMLS; Woodcock & Muñoz-Sandoval, 1993). Mothers were assessed only in Spanish while children were assessed in both Spanish and English. A total conceptual score of expressive vocabulary was constructed for children by giving them credit for a response on either the English or Spanish assessment. The findings revealed that mothers'

promotion of interactive reading and comprehension accounted for 15% of model variance and mothers' use of literacy oriented strategies accounted for 8% of model variance. This study was limited in its sample size and its use of concurrent data. However, it used rich observational data to examine the specific behaviors that low-income, Latina mothers use during reading to promote their children's development. The findings highlight the importance of examining the ways mothers engage their children during reading

In another small study of low-income Latina mothers and their preschoolers (N=80), Caspe (2009) examined the longitudinal association between maternal reading quality and children's emergent literacy skills. Mothers, primarily immigrants of Dominican and Mexican origin, reported how often they read with their children and then were provided with a wordless picture book and audiotaped engaging with their children. These audiotapes were transcribed and mothers' talk during the reading interaction was coded for pragmatic function (i.e., provisions and requests for information) and content (narrative and non-narrative information). Caspe then conducted a cluster analysis and identified three styles of reading among the mothers: storybuilder-labelers (i.e., high requests for narrative information from children), storytellers (i.e., high provision of narrative information to children), and abridged-storytellers (i.e., moderate provision of non-narrative and narrative information, low requests for narrative information). Six months later children's emergent literacy skills (i.e., letter identification, narrative ability, and print knowledge) were directly assessed. Notably, Caspe did not find an association between maternal frequency of reading and children's emergent literacy outcomes. However, hierarchical regression analyses revealed that mothers' classification as a storyteller was positively associated with children's print knowledge, after controlling for years in Head Start and maternal education. Additionally, years in Head Start moderated the association

between mothers' classification as an abridged-storyteller and children's print knowledge. Both findings, while significant, explained less than 20% of the variance in children's print knowledge. Interestingly, Capse notes that the storybuilder-labeler style was most similar to dialogic reading and yet this style was not associated with children's print-related skills. Notably this study did not examine the link between maternal reading quality and children's language skills. Nevertheless, this study highlighted significant within-group variability in the book sharing styles of low-income Latina immigrant mothers. Further this study emphasizes the importance of studying reading quality in addition to reading frequency to more fully understand when and why home literacy activities matter for children's early development.

Together these findings highlight the importance of examining maternal reading quality in addition to measures of behavioral frequency (e.g., frequency of home literacy activities). However, the existing literature suffers from a number of limitations. First, the literature on maternal reading quality has primarily focused on monolingual mothers. That research that has focused on bilingual Latino samples has used varying definitions of reading quality that don't fit within the broader literature's emphasis on dialogic reading. Second, the literature has primarily focused on preschoolers without considering how maternal reading quality might influence children before the age of 3. Third maternal reading quality has been primarily linked to children's expressive language skills. It is important to examine whether dialogic reading also has an impact on children's receptive language skills. Finally, reading quality has largely been conceptualized as a direct predictor of children's outcomes. However, conceptually it is expected that home literacy activities will be most impactful when they are both frequent and of high quality. Nevertheless there is a scarcity of studies that have assessed the moderating impact of maternal reading quality. In this study maternal reading quality is conceptualized as a moderator

that has the potential to strengthen the impact of frequent home literacy activities on children's expressive and receptive language skills.

Maternal language quality. Modern theories of language development suggest that children's acquisition of language is dependent not only on human biology but also on social exposure (Hoff, 2006; Huttenlocher et al., 1991). When parents or other caregivers linguistically engage with their children (i.e., use child-directed speech) children learn and begin to imitate new sounds. Thereby, individual variability in parental talk leads to substantial differences in the early communicative experiences of young children (Rowe, 2008). As a result, a growing literature has examined the quality of the language that mothers use with their young children and its implications for children's language development (Bornstein, Haynes, & Painter, 1998).

Research on maternal language quality has primarily relied on observational data of mothers interacting with their children that is subsequently transcribed and analyzed. Three components of maternal language quality often discussed in the literature are maternal quantity of language (i.e., the total number of words or utterances said by the mother), maternal vocabulary size (i.e., the total number of different words said by the mother), and grammatical complexity (i.e., the mean length of the mothers' utterance). These indicators of maternal language quality have been found to be relatively stable over time (Abraham, Crais, & Vernon-Feagans, 2013) and researchers over the last three decades have consistently linked these aspects of maternal language quality to children's receptive and expressive language skills (Barnes, Gutfreund, Satterly, & Wells, 1983; Boyce, Gillam, Innocenti, Cook, & Ortiz, 2013; Furrow, Nelson, & Benedict, 1979; Huttenlocher et al., 1991; Rowe, 2008; Song, Spier, & Tamis-LeMonda, 2014).

Bornstein and colleagues (1998) examined the association between maternal language quality and children's expressive and receptive vocabulary skills in a sample of White middle-class mothers (N=131) and their toddlers. When children were approximately 20 months of age they were videotaped interacting with their mothers in a free play situation for ten minutes. These videotapes were transcribed and analyzed to produce one measure of maternal language that combined mothers' grammatical complexity (i.e., mean length of utterances), and vocabulary size (i.e., total number of different root words the mother said to the child). Children's receptive and expressive vocabulary skills were tested from a number of direct language assessments as well as from the language the children used during the mother-child interaction. Findings from a structural equation model revealed that mothers' language quality predicted both children's receptive ($\beta=.28$) and expressive vocabulary ($\beta=.22$) skills. This finding held despite the inclusion of a number of other maternal variables that might explain variability in vocabulary (e.g., attitudes toward parenting, SES, knowledge of child development) in the model.

Similarly, Rowe (2008) examined the link between maternal language quality and children's preschool vocabulary skills in a predominantly White middle-class sample of primary caregivers, mostly mothers, and their toddlers (N=47). When children were approximately 30 months of age they were videotaped engaging with their parents in ordinary household activities for 90 minutes. At this visit, and one year later, children's receptive vocabulary skills were assessed using the PPVT-III (Dunn & Dunn, 1997). Parental language quality was assessed from transcripts of the parent-child interaction and included parents' vocabulary diversity, grammatical complexity, use of questions, and use of directives. Regression models controlling for children's vocabulary at 30 months revealed that parental language use was a significant

predictor of preschool receptive vocabulary skills, explaining approximately 10 percent of the variance in the outcome.

More recent research has begun to investigate this association among socioeconomically and ethnically diverse families. Song and colleagues (2014) examined the association between maternal language quality, children's language quality, and children's receptive vocabulary skills in an English speaking sample of Black and Latino low-income mothers and their toddlers (N=70). When children were 2-years-old and again when they were 3-years-old they were videotaped in a 10 minute, semi-structured book reading and free-play interaction with their mothers. At age 3, children's receptive vocabulary skills were assessed using the PPVT-III (Dunn & Dunn, 1997). The interactions at both time points were transcribed and analyzed for maternal and child quantity of language (i.e., total number of words), maternal and child vocabulary diversity (i.e., total number of different words), and lexical diversity. These indicators of quantity of language, vocabulary diversity, and lexical diversity were then combined to create one factor of maternal language quality that was included in subsequent models. Hierarchical regression models controlling for mother age, child birth order, mother education, and child gender revealed that maternal language at age two was associated with children's growth in lexical diversity and receptive vocabulary (effect sizes ranged from .27 to .42).

Few studies have specifically examined maternal language quality in Latino samples. Boyce and colleagues (2013) examined the association between maternal language quality and receptive and expressive language skills in a low-income sample of Mexican immigrant mothers and their U.S. born toddlers (N=62). When children were 24-month they were videotaped reading and playing for 15 minutes with their mothers and these observations were transcribed

and analyzed for mothers' quantity of language (i.e., total number of words), vocabulary diversity (i.e., total number of different words used) and grammatical complexity (i.e., mean length of utterances). Mothers also reported on their acculturation, the home literacy environment, demographic characteristics, and their toddlers' expressive and receptive language skills using the MacArthur Communicative Development Inventory (CDI; Fenson et al., 1993). At 36-months, toddlers' receptive and expressive language skills were also directly assessed using the Woodcock–Muñoz Picture-Vocabulary subtest of the Woodcock–Muñoz Language Survey (Woodcock & Muñoz-Sandoval, 1993). The findings revealed that mothers' language quality was not associated with children's language skills. Only maternal acculturation and the home literacy environment were found to longitudinally predict children's language skills. The authors suggest this lack of association may be due to the low quality of language used by the mothers in the sample. This finding needs to be further explored in additional Latino samples to determine if it is replicable.

Taken together these findings suggest that maternal language quality is an important predictor of children's receptive and expressive language development. While these findings have not yet been replicated in a within-group Latino sample, theories of language development do not suggest that this association should vary across ethnicities (Hoff, 2006). This line of research suffers from two critical gaps. First, this line of research largely assumes that the quality of mothers' talk to their children is stable across contexts (e.g., reading versus play), which may not be the case (Salo, Rowe, Leech & Cabrera, 2015). Research should be clear about the specific contexts to which their findings can be generalized. Second, this literature has focused on maternal language quality as a direct predictor of children's language skills. However, it is also important to understand how the quality of maternal language might serve as moderating

variable. That is, mothers' use of high quality language might bolster the effectiveness of frequent home literacy activities on children's expressive and receptive language skills. In this study mothers' language quality is conceptualized as a moderating variable.

Child interest in literacy activities. Research on children's own contributions to their early development is still emerging. A small albeit growing literature has highlighted the importance of children's early interest in literacy and literacy-related activities for the development of their language skills (e.g., Farver et al., 2006; Scarborough & Dobrich, 1994). Individual interest, broadly conceived, is a relatively stable disposition or orientation that is central to a particular domain (Renninger, 1992). When children are interested in a particular domain (e.g., literacy) they develop positive feelings and value-related attributions toward that domain (Schiefele, 1996, 2001). This early interest is considered an important antecedent of motivation. Parents can foster children's interest in literacy and literacy activities by providing a positive and stimulating climate in which their children can develop. When parents provide a consistent and supportive home literacy environment they are fostering their children's interest in shared literacy activities and eventually motivation to engage in those activities on their own. The influence is also reciprocal; children with a strong early interest in literacy may encourage their parents to engage them in home literacy activities (Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006). Children's interest in literacy and literacy activities is typically assessed, particularly with young children, by asking parents to report how often their children engage in behaviors that might indicate an interest in literacy (e.g., asking to be read to, looking at books on their own). The construct has primarily been examined as a direct predictor of children's literacy outcomes but a handful of studies have also explored its association with language

outcomes (Bracken & Fischel, 2008; Dobbs-Oates, Pentimonti, Justice, and Kaderavek, 2015; Frijters, Barron, & Brunello, 2000; Roberts, Jurgens, & Burchinal, 2005).

Fritjers and colleagues (2000) examined the association among the home literacy environment, children's interest in literacy, and children's expressive vocabulary skills in a predominantly White sample of children and their parents (N=95). Parents reported on the home literacy environment (e.g., frequency of reading, number of books in the home) and children's interest in literacy was measured using a task that assessed children's affective responses to literacy and literacy-related activities (i.e., child-report). Children's receptive vocabulary was assessed using the PPVT-R (Dunn & Dunn, 1981). The authors found that together the home literacy environment and children's interest in literacy activities accounted for 21% of the variance in children's receptive vocabulary skills. However, children's interest in literacy itself was not a significant predictor of receptive vocabulary. The authors suggest that this lack of association may be due to their method of assessing children's interest in literacy activities. However, they also suggest that children's interest in literacy activities may be more specific to fostering code-related skills than oral language.

Similarly, Roberts and colleagues (2005) longitudinally examined whether maternal reading frequency, maternal reading quality, maternal sensitivity, and children's interest in reading predicted children's language and emergent literacy skills in a low-income sample of African American mothers and their preschoolers (N=72). Mothers' reported how often they read to their child and their child's interest in literacy (i.e., does your child enjoy being read to). Mothers' were videotaped reading with their child and these videos were coded for maternal reading quality (e.g., elaborations, predictions) and maternal sensitivity (i.e., reading the child's cues). Children's receptive vocabulary skills at age three were assessed using the PPVT-R (Dunn

& Dunn, 1981). Children's receptive and expressive language skills at age four and at kindergarten entry were measured using the Clinical Evaluation of Language Fundamentals-Preschool (CELF-P; Wiig, Secord, & Semel, 1992). Children's emergent literacy skills at age four and at kindergarten entry were assessed using the Test of Early Reading Ability (TERA; Reid, Hresko, & Hammil, 2001). Children's interest in literacy was positively associated with children's expressive language skills at age four ($r = .44$) but was not significantly associated with any outcomes after controlling for the other independent variables. These findings may be the result of the small, non-representative sample used in the study or may be attributed to the use of only one item to assess children's interest in literacy.

Similarly, Bracken and Fischel (2008) investigated the association among the home literacy environment, children's interest in literacy, and children's language and emergent literacy skills using a sample of four-year-old children ($N=233$) and their low-income parents (92% mothers). Parents reported on the home literacy environment (i.e., how often they read to their child, the number of picture books in their home) their own reading practices (e.g., number of minutes parent reads per day), their child's reading interest (e.g., how often child looks at books himself or herself), and on a number of demographic variables (e.g., parental education). Children's early literacy skills (i.e., print knowledge, emergent writing skills, and linguistic awareness) were assessed using Get Ready to Read! (RTR; National Center for Learning Disabilities, 2000) and their receptive language skills were measured with the PPVT-III (Dunn & Dunn, 1997). Children's letter knowledge was assessed using the Woodcock-Johnson Letter-Word Identification subtest (Woodcock et al., 2001) a letter naming assessment and a print and story concepts assessment. Bivariate correlations indicated an association between children's interest in literacy activities and their receptive language skills. However, after controlling for

other key variables, children's interest in literacy was only predictive of children's letter knowledge. This study was limited in its reliance on parent (mostly mother) reported independent variables that focused primarily on the frequency of parent and child literacy practices rather than on observational measures of quality. This may help to explain the small effect sizes reported. Further, this study did not examine potential interactions between child and parental literacy practices that may strengthen their impact on children's early development.

To date, few studies have examined Latino children's interest in literacy activities. Farver and colleagues (2006) examined the mechanisms by which maternal reading frequency and parenting stress simultaneously influence children's language skills and social functioning among a sample of low SES, predominantly Mexican origin, Latina mothers (N=122) and their preschoolers. Mothers provided sociodemographic information and reported how many times per week they read to their child, their perceived parenting stress, and their child's interest in literacy activities (e.g., how many times per week does your child ask to be read to?). Children's receptive language skills were directly assessed in their dominant language using the Peabody Picture Vocabulary Test (PPVT-R; Dunn & Dunn, 1981) or the Test de Vocabulario en Imagenes Peabody (TVIP; Dunn, Lugo, Padilla, & Dunn, 1997) and children's teachers rated their social functioning (e.g., begins conversations appropriately; offers to help other children) using the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992). After accounting for a number of sociodemographic controls, maternal reading frequency was associated with children's receptive language skills and this association was mediated by children's interest in literacy activities. The findings suggest the importance of studying mechanisms influencing children's language skills and highlight the contribution of children themselves. This study suffered from one important limitation; the authors assessed children's

language skills in their dominant language rather than in both English and Spanish (i.e., conceptual scoring). As a result, it is likely that the receptive language abilities of the children in the study are underestimated.

Collectively these studies produce inconsistent findings regarding the association between children's interest in literacy activities and children's receptive and expressive language skills. These inconsistencies may be the result of various measures of children's interest in literacy activities. Additionally, this literature has primarily utilized small samples of preschool aged children. Understanding these associations in toddlerhood may provide additional information about how interest in literacy develops and whether or not it is linked to children's receptive and expressive language skills. Further, this line of research has primarily examined the contribution of children's interest in literacy activities over and above the contribution of frequent home literacy activities. To date, there is little research that examines how children's interest in literacy activities may strengthen the contribution of home literacy activities to their language development. In this study children's interest in literacy activities is conceptualized as a moderating variable.

Child engagement during reading. A handful of studies have examined the link between young children's engagement during shared reading and their language development (Crain-Thoreson & Dale, 1992; Deckner et al., 2006; Malin et al., 2014). Engagement encompasses behavioral, cognitive, and affective components that lead an individual to become deeply involved in a particular activity (e.g., reading; Guthrie, Wigfield, & You, 2012). The construct of reading engagement typically refers to older children's interactions with a particular book. However, research with young children who cannot yet read themselves has focused on children's engagement while being read to by their parents or other caregivers. This literature has

primarily used observational methods to capture children's engagement while reading with a parent, typically their mother. Young children's reading engagement has been operationalized as children's verbal and non-verbal behavior (e.g., Crain-Thoreson & Dale), verbal references to story content (Luo et al., 2014) and as a combination of affect, attention and participation (e.g., Deckner et al., 2006; Malin et al., 2014). This growing literature has linked children's early engagement while reading with their parents to both their expressive and receptive language skills.

Crain-Thoreson & Dale (1992) examined the longitudinal association between engagement during reading and language skills in a sample of linguistically precocious toddlers (N=25) and their mothers. When their children were 24 months of age, mothers reported on how often they read to their child and were videotaped reading with their children. These videotapes were then coded for children's engagement (i.e., verbal and non-verbal behavior). When children were approximately two and a half and four and a half years old their receptive vocabulary was assessed using the PPVT-R (Dunn & Dunn, 1981) and the syntactic complexity of their expressive language was assessed using the Test of Auditory Comprehension of Language-Revised (TACL-R). Children's engagement was predictive of both their receptive vocabulary and syntactic complexity at two and a half but not at four and a half. This study was limited to a small sample of children with advanced language abilities and therefore it cannot be generalized to broader populations. However, it was among the first to highlight the contribution of children themselves to reading interactions with their parents and to suggest that children's engagement during reading could potentially foster their receptive language skills.

Deckner and colleagues (2006) longitudinally examined the associations among children's reading engagement, the home literacy environment, maternal reading quality, and

children's expressive language development in a predominantly White, middle-class sample of mothers (N=55) and their children. When children were 27-months of age, mothers were videotaped reading a series of three books with their children and these videos were subsequently coded for children's reading engagement (i.e., affect, attention, and participation) and mothers' reading quality (e.g., use of labels, reference to print). Simultaneously, mothers also reported on the home literacy environment (e.g., frequency of reading with child, number of books in the home). Children's vocabulary was directly assessed using the Peabody Picture Vocabulary Test-III (PPVT-III, Dunn & Dunn, 1997) and the Expressive Vocabulary Test (EVT, Williams, 1997) when they were 30 and 42 months of age. The findings revealed that the home literacy environment, mothers' reading quality, and children's reading engagement all predicted children's expressive vocabulary skills at 30 and 42 months. The home literacy environment also predicted children's receptive vocabulary skills at 30 and 42 months. This study expanded upon Crain-Thoreson and Dale's (1992) operationalization of reading engagement to include not merely participation but also affect and attention. The study highlights the potentially differential pathways from children's reading engagement to receptive and expressive language skills.

Malin and colleagues (2014) built upon the aforementioned study to examine the mechanism by which maternal and paternal quantity and quality of reading were longitudinally associated with children's receptive vocabulary skills in a sample of low-income Latino and African American mothers, fathers, and their young children enrolled in Early Head Start (N=61). Mothers and fathers reported on the frequency with which they read to their children and were videotaped reading with their children. The videotapes were then transcribed and coded for indicators of reading quality: recasts of the child's language (e.g., Yes, that's a dog), prompts to produce language (e.g., What does a cow say?), labels (e.g., That's a bird), and queries for labels

(e.g., What do you call that?). The videotapes were also coded for children's reading engagement (i.e., children's affect, attention, and participation during reading). Children's receptive vocabulary skills were directly assessed using the PPVT-III (Dunn & Dunn, 1997). After controlling for parental education and maternal and paternal reading frequency, maternal and paternal reading quality were associated with children's receptive vocabulary skills. They also found that this association was mediated by children's engagement while reading with their parents. This study used a small convenience sample of English-speaking Latino and African American parents. However, it demonstrates the value of understanding *how* parents and their children engage one another during reading and the ways in which observational data can be used to better understand the context of reading.

Luo and colleagues (2014) also examined book-sharing quality, children's reading engagement and their longitudinal impact on children's storytelling skills among a diverse sample of low-income African American (n=62), Dominican (n=67), Mexican (n=59), and Chinese (n=82) mothers and their children. Mothers were asked to share a wordless picture book with their 4-year-old children. The book-sharing interaction was videotaped and subsequently transcribed (CHILDES; MacWhinney, 2000) and coded. Mothers were coded for their use of story components (i.e., how much storyline information the mothers provided), dialogic emphasis (i.e., how often mothers asked children about the story), and content (i.e., highlighting emotions, individual goals, or negative consequences). Children were coded for their references to story components and story content (i.e., engagement during reading). One year later, children completed a storytelling narrative task in which they were given a different wordless picture book and asked by a researcher to tell a story with it. This storytelling narrative task was subsequently coded for children's references to story components and to story content. Notably,

the findings revealed important differences in the book-sharing styles of Dominican and Mexican mothers highlighting the importance of looking at within-group variability among Latino samples. All groups were low in dialogic emphasis. However, across all groups, mothers' use of dialogic emphasis predicted children's contributions during the book-sharing task, which in turn predicted children's later storytelling skills. This study emphasizes that children are not passive recipients while reading with their mothers and that their engagement during reading influences their own development.

In summary, this limited literature suggests that young children's engagement during shared reading may be associated with both their expressive and receptive language skills. The literature uses small samples of convenience and largely has not reported effect sizes. Nevertheless, it uses rich observational coding schemes to assess children's contributions to home literacy activities, a line of research which has been critically understudied. Previous research examining young children's engagement while being read to has primarily focused on the direct association between children's reading engagement and their outcomes. Theoretically, it is expected that both children's and parents' contributions interact with one another to foster a highly effective home literacy experience. Additionally, understanding the protective role of children's individual characteristics may have important implications for both policy and practice. In this study, children's engagement during reading is conceptualized as a moderating variable.

Chapter 3: Methods

This study included mother and father interviews, observed mother-child reading interactions, and direct child assessments. Mothers and fathers were administered a questionnaire that asked about their engagement in home literacy activities and basic demographic information such as education, employment, and marital status. Mothers were also videotaped reading a wordless picture book with their children and reported on their children's interest in literacy activities. Children's expressive and receptive language skills were directly assessed in their dominant language. Children's expressive language skills were conceptually scored (i.e., credit was given for correct responses in either English or Spanish).

Power Analysis

A power analysis was conducted a-priori to determine the minimum required sample size to detect an effect size of .20 (i.e., small effect; Cohen, 1992). With four predictor variables in the model, an alpha level of .05 and 80% power (i.e., statistical convention), a minimum sample of 53 families was determined to be required.

Participants

Participants were U.S. born toddlers (N=57; 55% female), 24-31 months of age, of Latino heritage and their immigrant mothers and fathers. Children and their parents were recruited from early care centers in the Washington D.C. metropolitan area. The majority of the families enrolled at these early care centers had origins in El Salvador and Mexico, reflecting the demographic makeup of the Washington D.C. metropolitan area (Comey, 2010). Five early care centers were selected for study recruitment since they predominantly served Latino toddlers with immigrant parents, the researchers held trusted connections with the staff and families as a result of previous research collaborations, and they all followed a similar bilingual Spanish-English

academic curriculum. Classrooms at the centers are staffed with two teachers, one that speaks entirely in English and one that speaks entirely in Spanish. The early care centers all promote family engagement through a variety of workshops and activities for parents. While there was some socioeconomic variability, the majority of families enrolled in these early care centers fell below the poverty line. Directors of the early care centers expressed support for the research and helped to coordinate recruitment and data collection.

Pilot Study

To determine the feasibility of conducting this study and the appropriateness of the chosen measures, a pilot study was conducted with 20 children and their parents. The pilot study resulted in two critical decisions regarding the larger study. First, the pilot study included two measures of child language: The Mullen Scales of Early Learning: AGS Edition (Mullen, 1995), which is a direct child assessment of receptive and expressive language skills and the MacArthur-Bates Communicative Development Inventory (MacArthur CDI; Fenson et al., 2000), which is a mother-report measure of the child's expressive vocabulary skills. The pilot study revealed that the MacArthur CDI was too burdensome for participating mothers and as a result the data were of poor quality. Moreover, it is a mother report measure and as such can produce biased estimates of children's skills. Based on these findings, the decision was made to only include the Mullen Scales of Early Learning in the larger study. Second, in the pilot study, both mothers and fathers completed exactly the same study components. This presented a number of challenges because fathers had many more time constraints than their partners and most were not able to participate in all components of the study. To increase fathers' participation rates their time burden was substantially reduced. Fathers were given the option to

be interviewed over the phone with a short survey that only asked about their engagement in home literacy activities and demographic information.

Procedure

The first point-of-contact with potential participants occurred at parent drop-off or pick-up at the early care centers. Parents were provided with a brief description of the study and a flyer and were asked to provide their phone numbers if they were interested in participating and were eligible based on inclusion criteria (i.e., identify as Latino, are foreign-born, and have a child between 24 and 31-months of age enrolled in the center). A follow-up phone call was then placed to provide more in depth information about the study objectives and components and answer any questions the mothers or fathers had. If a mother and father agreed to participate in the study they were scheduled for a time to complete the interview and the mother-child interaction. The scheduler noted the parent's preferred language in order to bring the English or Spanish version of the interview and consent forms and noted the child's preferred language in order to know if the language assessment instructions should be provided in English or Spanish. Parents were able to choose whether they wanted to complete the interview in their home or at the early care center and the time or day that was most convenient for them. Fathers also had the opportunity to be interviewed by phone. Mother-child reading interactions took place in the early care center unless mother specifically requested that it occur at the home. Child assessments were conducted at the early care center without a parent present unless parent presence was specifically requested. To incentivize participation, parents were provided with an educational toy for their child after completing each component of the study.

Consent. Prior to the beginning of any portion of the study, parents signed a series of consent forms: consent to participate in the study, consent to be videotaped, and consent to use

video of the participant for educational purposes (e.g., conference presentation; see Appendix A for consent forms). The researcher thoroughly reviewed each consent form with the participant and answered any questions before proceeding to the study. Each participant signed two copies of each consent form; one to keep for their own records and one for the researcher to keep. The consent process took approximately 10 minutes.

Interview. Mothers and fathers were interviewed in their preferred language. Three trained Spanish-English bilingual research assistants translated and back-translated all items from English to Spanish to ensure equivalence across languages. Mothers and fathers were told that they did not have to answer any questions they did not want to and had the right to stop at any time. The researcher provided answer options for each scale on a separate piece of paper to allow for a more rapid administration of the questionnaire. The mother questionnaire took approximately 20 minutes to administer and the father interview took approximately 10 minutes to administer. Data from the interviews were entered into SPSS, version 23.

Mother-child reading interaction. Mothers were provided with a wordless picture book, *Frog, Where are you?* (Mayer, 1969). The book's illustrations are in black and white and depict a boy searching for his frog that has run away. Wordless picture books are widely used to elicit spontaneous speech samples and this book has been used extensively in the literature across a wide range of socioeconomic and ethnic samples (Bamberg & Damrad-Frye, 1991; Baker & Vernon-Feagans, 2015; Curenton & Justice, 2004). This book has also been used specifically with Latino samples (e.g., Kuchirko, Tamis-LeMonda, Luo, & Liang, 2015; Schick, 2014; Schick & Melzi, 2015, Tamis-LeMonda et al., 2014). Mothers were handed the book and instructed to share it with their child as they normally would. Mothers were also told to sit with their child on their lap or next to them facing the camera. To promote a more naturalistic

experience, the mother-child reading interaction was not timed and only concluded when the mother indicated she was done with the activity. The interactions varied widely in length from 61 to 810 seconds ($M=338.52$, $SD=172.60$). The videotaped reading interaction was subsequently transcribed and coded for child engagement during reading, maternal language quality, and maternal reading quality (see Measures section).

Direct child language assessment. Children's expressive and receptive language skills were assessed either in a quiet room at the early care center (79%) or at the child's home (21%). Children's responses to the expressive language section were conceptually scored (i.e., children were given credit for a correct response whether it is provided in English or Spanish). This is an improvement over many other language assessment procedures that only assess children's skills in English or assess their skills in their dominant language without accounting for their knowledge in both languages. Conceptual scoring is currently considered best practice in the field (Hammer et al., 2011). The assessment of children's receptive language skills was administered in the child's preferred language as determined by the child's mother. The child assessment took approximately 20 minutes to complete depending on the language ability of the child. Children received a sticker for their participation in this portion of the study.

Measures

A list of all study measures, their method of assessment (i.e., direct, observed, reported), and their place in the conceptual model (i.e., dependent variable, moderating variable, independent variable, control variable) is contained in Table 1.

Dependent variables. The dependent variables examined in this study are children's expressive language skills and receptive language skills. Both children's expressive and receptive language skills were directly assessed using the Mullen Scales of Early Learning: AGS Edition (MSEL-

AGS; Mullen, 1995). The MSEL-AGS is a standardized, individually administered and norm-referenced assessment of children's cognitive skills. It is designed for monolingual children between 21 and 63 months of age. For the 24–30 month age group, the full sample alphas were .82 and .88 for receptive and expressive language, respectively. The measure also correlates highly ($r=.78$ to $.95$) with the Auditory Comprehension and Verbal Ability subtests of the Preschool Language Scale. Previous small-scale research has conceptually scored the MSEL-AGS with emerging bilingual Latino toddlers (e.g., Song et al., 2012). However, this measure has not been normed on a bilingual sample. For additional information on the language direct assessment protocol see Appendix B.

Expressive language skills. Children's expressive language skills were directly assessed using the expressive language scale of the Mullen Scales of Early Learning: AGS Edition (MSEL-AGS; Mullen, 1995). Directions were provided to the child in their dominant language as determined by the child's mother. During the expressive language assessment, children were shown a series of photos and objects and asked to label the items. This assessment was conceptually scored (i.e., correct responses in either English or Spanish were accepted). Following administration, children's raw scores were converted into age-adjusted t-scores based on a national sample ($M=50$, $SD=10$). Children in this sample fell below the national average by more than a standard deviation ($M=39.13$, $SD=10.32$).

Receptive language skills. Children's receptive language skills were directly assessed using the receptive language scale of the Mullen Scales of Early Learning: AGS Edition (MSEL-AGS; Mullen, 1995). Directions for the MSEL-AGS were provided to the child in their dominant language as determined by the child's mother. Children were shown a series of photos and objects and asked to point to the given object when it was named by the experimenter. Following

administration, children's raw scores on each scale were converted into age-adjusted t-scores based on a national sample ($M=50$, $SD=10$). Children in this sample fell below the national average by more than a standard deviation ($M=38.79$, $SD=10.90$).

Independent variable. The independent variable for this study is home literacy activities assessed by mother- and father-report.

Home literacy activities. Mothers and fathers reported on three items that assessed how often they engaged with their children in various home literacy activities (e.g., reading, telling stories, singing songs; see Appendix C for exact items) on a scale from 0= *never* to 4=*almost everyday*. Mothers and fathers were also asked what language they typically used while engaging in each literacy activity (1= *English*, 2= *Spanish*, 3= *both English and Spanish*). Mothers also reported on the fathers' participation in these activities and these reports were used in cases where the father declined to participate ($n=9$). This method is standard in the field and was used to provide information for fathers that declined to participate. Nonresident fathers who did not see their child at all (as reported by the mother) were coded 0=*never* on the three items ($n=10$). Responses on the three items for both parents were then summed to create a composite variable of home literacy activities ($\alpha= .81$). A higher score on the composite variable indicated the child was more frequently engaged in home literacy activities ($M=15.2$, $SD=5.79$).

Moderating variables. Based on theory and empirical evidence, this study tested whether children's interest in literacy activities, children's engagement during reading, maternal language quality, and maternal reading quality moderated the association between home literacy activities and children's expressive and receptive language skills.

Child's interest in literacy activities. As part of the interview, mothers were administered the Children's Literacy Interest subscale of the Home Literacy Environment Questionnaire

(Lonigan & Farver, 2002). This subscale was previously administered to a sample of low-income, Latina immigrant mothers and was found to have high internal consistency ($\alpha = .83$; Farver et al., 2006). The subscale contained five items (e.g., “How many times per week does your child ask to be read to?”) on a 5-point scale (1=*never*; 5=*daily*). Items were summed to create a composite score of child reading interest ($\alpha = .61$). Scores ranged from 5 to 23. Higher scores signified that the child was more interested in literacy activities ($M=15.29$, $SD=3.99$). See Appendix D for exact items.

Child engagement during reading. Child engagement during reading was coded from the videotaped mother-child reading interactions using the Children’s Interest in Reading coding scheme (Deckner et al., 2006; Malin et al., 2014). This coding has been previously used with low-income, Latino families and was found to have strong internal consistency ($\alpha=.77$; Malin et al., 2014). Reading interactions were micro-coded by two trained bilingual research assistants and took approximately 20 minutes per video to code. Inter-rater reliability was assessed on a randomly selected 20% of the interactions ($\kappa = .84$). Micro-coding procedures focus on concrete behaviors exhibited during an observation (Bell & Bell, 1989). In this case, the videos were coded at successive 30-second intervals for three components of child engagement: affect, attention, and participation. Affect was rated based upon the child’s facial and behavioral cues from 1, extremely negative affect (i.e., child is protesting or crying frequently during the entire interval) to 5, extremely positive affect (i.e., child laughing or smiling frequently during the interval). Attention was rated from 1, not paying attention (i.e., child is not paying attention for the whole interval) to 5, constant attention (i.e., child appears focused on book for the whole interval). Participation was rated based on the child’s verbal or behavioral contributions from 1, no participation (i.e., child made no behavioral or verbal contributions during the interval) to 5,

high participation (i.e., child made five or more behavioral or verbal contributions during the interval). Following coding, scores on each of the three components were then averaged across intervals. Scores on the three components were then summed to create one score of child engagement during reading ($\alpha=.73$). The child engagement during reading composite was comprised of children's attention ($M=4.24$, $SD=.78$), affect ($M=3.28$, $SD=.56$) and participation ($M=3.59$, $SD=.94$). Scores ranged from 5.75 to 13.88. Higher scores indicated children were more engaged during reading ($M=11.13$, $SD=1.88$). For additional details on coding please see Appendix E.

Mother reading quality. Following the dialogic reading method (Whitehurst et al., 1994), mother reading quality was coded from the videotaped parent-child reading interactions (see Appendix G for additional information on the protocol). Two trained bilingual research assistants coded all the videos and each video took approximately 15 minutes to code. Inter-rater reliability was conducted on a randomly selected 20% of the interactions ($\kappa = .86$). Reading quality was operationalized as mothers' use of dialogic reading strategies; specifically, wh-questions (i.e., who, what, where, when and why questions; e.g., "What is the frog doing?"), labels (e.g., "That's a frog."), and recasts of child language (i.e., repeating and extending a child's utterance; e.g., "Yes, that is a frog."). Interactions were then coded for maternal utterances classified as wh-questions, recasts, or labels. Mothers' wh-questions, labels, and recasts were then summed and a ratio of total dialogic reading utterances to seconds spent reading was then created to account for the different lengths of the mother-child reading interactions ($\alpha=.74$). Scores ranged from .01 to .19. Higher scores indicated higher maternal reading quality ($M=.10$, $SD=.05$); for additional information on coding see Appendix H).

Mother language quality. Mothers' language quality was assessed from the videotaped mother-child reading interactions. All videotaped interactions were transcribed at the utterance unit level according to the standardized format of the Codes for the Analysis of Human Language (CHAT) available using the Child Language Exchange System (CHILDES; MacWhinney, 2000). After transcription, a second researcher verified the accuracy of each transcript by watching each video and making sure the observation matched what had been transcribed. Bilingual researchers conducted all of the transcription and verification. Each video took approximately four hours to transcribe and one hour to verify. From the tapes, vocalizations between mother and child were transcribed word by word. Transcripts were then automatically analyzed in CHILDES to assess the following indicators of maternal language quality: mothers' grammatical complexity (i.e., mean length of the mothers' utterance; MLU), vocabulary diversity (i.e., number of different words), and vocabulary size (i.e., number of total words). Each indicator of maternal language quality was then transformed into a standardized Z ($M=0$, $SD=1$) score and subsequently summed to create a composite of maternal language quality ($\alpha=.78$). This method of assessing language quality has been used extensively in the field (Hoff, 2003; Rowe et al., 2008). Scores ranged from -4.06 to 6.96. Higher scores indicated higher quality of maternal language ($M=-.027$, $SD=2.58$).

Control variables. Due to sample size constraints, only one control variable was included in the analyses. A series of bivariate correlations were conducted to determine which sociodemographic characteristics (i.e., parental education, child gender, father residence, and maternal employment) was most associated with children's expressive and receptive language skills (see Table 3 for bivariate correlations among sociodemographic characteristics and key study variables). Child age was not included in these exploratory correlations because children's

receptive and expressive language scores were age-adjusted. That is, the child's language score accounted for their age at the time they were assessed. For example, a 24-month-old child needed to achieve a raw score of 24 and a 31-month-old child needed to achieve a raw score of 30 both to achieve the same mean standardized score. The bivariate correlations indicated the strongest association between parental education and children's receptive ($r=.26$, $p<.05$) and expressive ($r=.27$, $p<.05$) language skills, supporting a wide body of literature that highlights the association between indicators of SES and children's early developmental outcomes (Bornstein, 2002; Bradley & Corwyn, 2002). As a result, parental education was included as a control variable. Mothers and fathers were asked how many years of school they had completed (1=*less than 9 years of education*; 2=*some high school education*; 3=*high school degree or equivalent*; 4=*more than a high school education*; see Appendix I for exact item). Mothers and fathers education levels were then averaged to create one variable of parental education per family. The study sample had wide ranges in educational attainment (1 to 17 years) despite little variability in household income.

Analytic Plan

To test the aforementioned research question a series of descriptive analyses, bivariate correlations, and multiple regression analyses were conducted.

Descriptive analyses. Descriptive statistics (i.e., mean, standard deviation, and range) for key study variables and sociodemographic variables, including education, income, and child language, are reported in Table 2. Descriptive analyses provide information on the sample that can assist in the interpretation and generalization of the study's findings. Descriptive information is provided for the following key study variables: home literacy activities, child expressive language skills, child receptive language skills, maternal reading quality (i.e., wh-

questions, labels, recasts), maternal language quality (i.e., vocabulary size, vocabulary diversity, grammatical complexity), child engagement during reading (i.e., affect, attention, participation), and child interest in literacy activities (e.g., child asks to be read to).

Bivariate correlations. Correlations were conducted among sociodemographic variables and key study variables for three primary reasons: first, to test for issues of multicollinearity among study variables, second to identify a control variable for use in subsequent analyses, and third to examine the bivariate associations among study variables. All correlation analyses were conducted in SPSS, version 23.

Multiple regression analyses. Multiple regression analyses were conducted to test the study's central research questions. Multiple regression is a highly flexible data analytic system often employed in the behavioral sciences. It allows researchers to test the association between multiple independent variables and a quantitative dependent variable. Multiple regression has a number of benefits over other analytic methods. First, it yields the total variance explained by multiple independent variables on a dependent variable (i.e., R^2). Second, it yields the individual contribution of a single independent variable on a dependent variable after accounting for other variables also in the model (i.e., β). Third, it can be conducted with smaller sample sizes. Finally, it easily lends itself to statistical hypothesis testing and estimation (Cohen et al., 2003). All estimated models described below yielded individual standardized and unstandardized β estimates as well as overall R^2 estimates. Each multiple regression analysis used a stepwise procedure and included mean-centered variables (i.e., each variable's mean was subtracted from the raw score to create variables with a mean of 0) in order to reduce possible multicollinearity within the models. In line with statistical convention, a p-value of .05 was used as a cut off to determine overall model and individual β significance.

Research question 1: Is the frequency of home literacy activities associated with toddlers' receptive language skills in a sample of low-income Latino immigrant families? To test the study's first research question, the following multiple regression equation was estimated:

$$\text{Model 1: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2,$$

where Y = receptive language skills, X₁ = parental education, and X₂ = home literacy activities.

This model tested whether variability in children's receptive language skills was explained by the frequency of home literacy activities over and above the contribution of parental education.

Research question 2: Is the frequency of home literacy activities associated with toddlers' expressive language skills in a sample of low-income Latino immigrant families? To test the study's second research question, the following multiple regression equation was estimated:

$$\text{Model 2: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2,$$

where Y = expressive language skills, X₁ = parental education, and X₂ = home literacy activities.

This model tested whether variability in children's expressive language skills was explained by the frequency of home literacy activities over and above the contribution of parental education.

Research question 3: Is the association between home literacy activities (i.e., mother and father reading, storytelling, and singing songs) and Latino toddlers' receptive language skills moderated by maternal language quality, maternal reading quality, children's engagement during reading, and children's interest in literacy activities? To test the study's third research question, the following four multiple regression equations were estimated:

$$\text{Model 3: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_2 X_2 \beta_3 X_3,$$

where Y = receptive language skills, X₁= parental education, X₂ = home literacy activities and X₃ = maternal language quality.

$$\text{Model 4: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_2 X_2 \beta_3 X_3,$$

where Y = receptive language skills, X₁= parental education, X₂ = home literacy activities and X₃ = maternal reading quality.

$$\text{Model 5: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_2 X_2 \beta_3 X_3,$$

where Y = receptive language skills, X₁= parental education, X₂ = home literacy activities and X₃ = child engagement during reading.

$$\text{Model 6: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_2 X_2 \beta_3 X_3,$$

where Y = receptive language skills, X₁= parental education, X₂ = home literacy activities and X₃ = child interest in literacy activities.

These stepwise models tested whether maternal language quality, maternal reading quality, child engagement during reading, or child interest in literacy activities, respectively, moderated the association between frequency of home literacy activities and children's receptive language skills, after controlling for parental education. In step 1, parental education, home literacy activities, and the moderating variable ($\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$) were included in the model. In step 2, the interaction term between home literacy activities and the moderating variable (i.e., $\beta_2 X_2 \beta_3 X_3$) was included.

Research question 3: Is the association between home literacy activities (i.e., mother and father reading, storytelling, and singing songs) and Latino toddlers' expressive language skills moderated by maternal language quality, maternal reading quality, children's engagement during reading, and children's interest in literacy activities? To test the study's fourth research question, the following four multiple regression equations were estimated:

$$\text{Model 7: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_2 X_2 \beta_3 X_3,$$

where Y = expressive language skills, X_1 = parental education, X_2 = home literacy activities and X_3 = maternal language quality.

$$\text{Model 8: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_2 X_2 \beta_3 X_3,$$

where Y = expressive language skills, X_1 = parental education, X_2 = home literacy activities and X_3 = maternal reading quality.

$$\text{Model 9: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_2 X_2 \beta_3 X_3,$$

where Y = expressive language skills, X_1 = parental education, X_2 = home literacy activities and X_3 = child engagement during reading.

$$\text{Model 10: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_2 X_2 \beta_3 X_3,$$

where Y = expressive language skills, X_1 = parental education, X_2 = home literacy activities and X_3 = child interest in literacy activities.

These stepwise models tested whether maternal language quality, maternal reading quality, child engagement during reading, or child interest in literacy activities, respectively, moderated the association between frequency of home literacy activities and children's expressive language skills, after controlling for parental education. In step 1, parental education, home literacy activities, and the moderating variable ($\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$) were included in the model. In step 2, the interaction term between home literacy activities and the moderating variable (i.e., $\beta_2 X_2 \beta_3 X_3$) was included.

Chapter 4: Results

This chapter is organized in the following way: (1) analytic sample and missing data, (2) normality and multicollinearity, (3) descriptive results, (4) correlations, and (5) multiple regression analyses.

Missing Data

Child assessment missing data. There were 57 families that participated in the study. Four children were excluded from the analytic sample because expressive and receptive language assessment data were not obtained. These four children were uncooperative and refused, on multiple occasions, to participate in the language assessment. Data from these children were excluded because imputing outcome data on the dependent variable may bias parameter estimates for predictor variables (Allison, 2002). Thus, the analytic sample is limited to 53 children and their parents.

Mother missing data. Of the 53 children in the analytic sample, 48 of their mothers completed the questionnaire. As a result there was 9% missing data for measures derived from the mother questionnaire (i.e., maternal literacy activities, child interest in literacy, sociodemographic variables). Of the 53 children in the analytic sample, 45 of their mothers participated in the videotaped mother-child interaction. As a result there was 15% missing data for measures derived from the mother-child interaction (i.e., child engagement during reading, maternal language quality, maternal reading quality).

Father missing data. Of the 53 children in the analytic sample, 30 of their fathers completed the father questionnaire and an additional 10 children did not have a father involved in their lives. Thus, 13 fathers (25%) declined to participate in the study. Mothers reported on their partner's demographic and home literacy activity information for 9 of the 13 fathers. This is

a standard method commonly used in the parenting literature. A correlation analysis was conducted for families with complete father and mother information to determine the association between mother-report of father literacy activities and father-report of father literacy activities ($r = .71$). Given the strong correlation, mother-reported father information was used when fathers declined to participate. The final data set had missing data on 7% of fathers.

Missing data handling. The 53 families in the final analytic sample included data from 48 mothers and 30 fathers. Missing mother and father data were handled with Multiple Imputation in SPSS, version 23. The Multiple Imputation procedure in SPSS uses full conditional specification to impute missing values on each variable and then uses those imputed values to impute missing values on other variables. Multiple Imputation procedures result in a number of estimates (in this study, five) for each missing value and then pools those estimated missing values in subsequent analyses. This allows for analytical estimates and standard errors as if there had been no missing values in the original dataset. Multiple imputation is a modern method of handling missing data that has been shown to be superior to other alternative techniques (e.g., listwise deletion, pairwise deletion, mean imputation; Graham, 2009). It is the explicit missing data approach favored by most methodologists and offers a number of benefits including producing less biased estimates and increasing the number of observations (and power) used in statistical analyses (Enders, 2013; Schafer & Graham, 2002).

Multiple imputation is only considered an acceptable method for handling missing data if the data are missing at random (MAR) or missing completely at random (MCAR). To determine whether the data were MCAR, Little's MCAR test was conducted in SPSS's missing value analysis module. The test was not significant (Chi-square = 262; $df = 210$; $p > .05$) indicating that there was not an identifiable pattern that existed in the missing data. This suggests that the

data met the assumption of MAR or MCAR. Thus, all analyses below are reported using the full analytic sample with imputed values (N=53). It is important to note that the results using multiple imputation procedures did not generally differ from the results using list-wise deletion (i.e., the default method in SPSS, version 23).

Normality and Multicollinearity

Multiple regression analyses operate under the assumption that variables are normally distributed and have little to no multicollinearity (Cohen, Cohen, West, & Aiken, 2003). It is recommended, particularly with small samples, to examine each variable and determine if these assumptions are met prior to proceeding with analyses.

To examine normality of study variables, both Quantile-quantile (Q-Q) plots and histograms were used (Osborne & Waters, 2002). Q-Q plots are scatterplots that plot theoretical quantiles on the x-axis and the quantiles of the observed variable on the y-axis. All the plots approximated a positive line suggesting a normal distribution for the variables in this study. Histograms are a graphical representation of the frequency distribution of data. Histograms for all key study variables approximated a normal distribution.

Multicollinearity refers to a high correlation among predictor variables and can be problematic because it produces biased estimates for the individual predictor variables in the model. That is, it does not influence estimates of the overall model but it biases estimates specific to a predictor variable (Hair, Anderson, Tatum, & Black, 1998). To test for multicollinearity, bivariate correlations among the predictor variables in the model were conducted. The only significant association was between maternal language quality and the frequency of home literacy activities ($r = .36, p < .05$). The Variance Inflation Factor (VIF) was also used to examine the severity of multicollinearity among the study variables. The VIF

measures how much the variance of a regression coefficient is influenced by multicollinearity. Acceptable levels of VIF for small samples are below 2.5 (Hair et al., 1998). VIF for the variables were all below 1.5 suggesting that the assumption of little or no multicollinearity was met.

Descriptive Results

Descriptive statistics for all study variables are in Table 2. Approximately half (55%) of the children in the study were female. Children were, on average, 28 months old ($SD = 2.7$, range 24 to 31) at the time of assessment.

Sociodemographic characteristics. At the time of the study mothers and fathers were, on average, 31 and 33 years old ($SD = 5.05$, range 19 to 40 and $SD = 5.21$, range 24 to 46, respectively). On average, mothers and fathers reported having lived in the United States for 11 years ($M = 11.2$; $SD = 3.3$). Nearly two thirds of mothers were employed (66%) and nearly all fathers (95%) were employed part or full time. Nearly a third (32%) of mothers reported a household income of less than \$12,000 per year, more than a third (34%) reported a household income between \$12,000 and \$24,000 per year, and more than a third (34%) reported a household income above \$24,000 per year. More than a third of mothers and fathers (36%) reported having less than an 8th grade education. Another 19% of mothers and 18% of fathers completed some high school but did not receive a degree. About a quarter of mothers and fathers (25% and 23%, respectively) completed high school. The remaining mothers (21%) and fathers (23%) completed at least some college. More than half of the participating parents were from El Salvador (55% for mothers, and 54% for fathers). Another 17% of mothers and 21% of fathers were of Mexican origin, followed by 11% of mothers and 13% of fathers of Honduran origin. All parents were native Spanish speakers and more than two thirds (72% of mothers) but only about

a half (54%) of fathers reported speaking only Spanish.

Compared with national estimates of foreign-born Latinos from the 2014 American Community Survey the families in this study are more likely to be living in poverty, less likely to have attained a high school degree, are less likely to speak English and are more likely to be married.

Home literacy activities. Approximately, 53% of mothers reported reading, 42% reported singing and 42% reported telling stories to their children almost everyday. In contrast, 38% of fathers reported singing to their children and 18% of fathers reported reading and telling stories to their children almost everyday. About a third of mothers (32%) and more than half of fathers (55%) reported using at least some English while singing with their children. More than half of mothers (58%) and nearly three-quarters of fathers (73%) reported using at least some English while reading with their children. About a quarter (25%) of mothers and nearly half (45%) of fathers reported using at least some English while telling stories to their children.

Children's engagement and interest. During the reading interaction with their mothers, children were, on average, highly engaged ($M=11$, $SD=1.87$) reflecting positive affect, focused attention and high participation for the majority of the interaction. On average, mothers reported that their children were moderately interested in literacy activities ($M = 15.29$, $SD = 3.99$) with scores ranging from 5 to 23 out of a possible range of 5 to 25.

Quality of maternal reading and language. On average, mothers used one dialogic utterance every 10 seconds ($M = .10$, $SD = .05$). There was substantial variability in mothers' reading quality (range .01 to .19; i.e., one dialogic utterance every 100 seconds to one dialogic utterance every five seconds). Of mothers' total dialogic utterances, about half were wh-questions (47%), about a third were labels (35%) and the remaining (18%) were recasts of the

child's language. The quality of mother's language was automatically analyzed in CHILDES, producing three indicators of quality: grammatical complexity (i.e., mean length of utterance), vocabulary diversity (i.e., number of different words used) and vocabulary size (i.e., number of total words used). On average, participating mothers spoke in short utterances ($M=3.3$ words per utterance, $SD=.79$) indicating poor grammatical complexity. However, mothers' vocabulary size and complexity ranged considerably. Mothers' spoke anywhere from 81 words to 1295 words ($M=396$, $SD=251$), and used from 39 to 257 words different types of words ($M=117$, $SD=53$).

Children's language skills. Children's receptive and expressive language skills, on average, fell below the nationally normed average for monolingual English speaking children ($M=50$, $SD=10$) by more than a standard deviation on both receptive ($M=39.13$, $SD=10.32$) and expressive ($M=38.79$, $SD=10.90$) language. However, there was wide variability with scores ranging from 20 to 70. There are no norms for this assessment with children who are learning two languages.

Bivariate Correlations

Bivariate correlations for key study variables (i.e., home literacy activities, children's interest in literacy activities, children's engagement during reading, maternal reading quality, maternal language quality, children's receptive language skills, children's expressive language skills) and sociodemographic variables (i.e., parental education, child gender, father residence, maternal employment) are presented in Table 3. Only significant associations are presented here. Parent education was positively associated with children's receptive ($r=.26$, $p<.05$) and expressive ($r=.27$, $p<.05$) language skills. The frequency of home literacy activities was positively associated with mothers' language quality ($r=.36$, $p<.01$). The frequency of home literacy activities was also positively associated with children's receptive ($r=.42$, $p<.01$) and

expressive ($r=.48$, $p<.001$) language skills. Children's interest in literacy activities was positively associated with both their receptive ($r=.42$, $p<.01$) and expressive ($r=.30$, $p<.05$) language skills. Children's engagement during reading was positively associated with mothers' reading quality ($r=.35$, $p<.05$), mothers' language quality ($r=.40$, $p<.01$), and children's receptive ($r=.34$, $p<.05$) and expressive ($r=.37$, $p<.01$) language skills. Mothers' reading quality was positively associated with mothers' language quality ($r=.33$, $p<.05$) and children's receptive ($r=.30$, $p<.05$) and expressive ($r=.49$, $p<.01$) language skills. Mothers' language quality was positively associated with both children's receptive ($r=.50$, $p<.001$) and expressive ($r=.46$, $p<.01$) language skills.

Multiple Regression Analyses

To test the study's research questions a series of multiple regression analyses were conducted. Results of these analyses are presented in Tables 4-13. All analyses were also conducted without father data (i.e., home literacy activities was measured only as the frequency of mother reading, singing songs, and telling stories). Conducting the analyses without fathers did not change the overall results. All results presented below include both mother and father data.

Research question 1: Is the frequency of home literacy activities associated with toddlers' receptive language skills in a sample of low-income Latino immigrant families? To address this research question a multiple regression model was estimated to assess the association between the frequency of home literacy activities and children's receptive language skills over and above parental education. Model 1 (see Table 4), with two predictors (parental education and home literacy activities), accounted for 27% of the variance in children's receptive language skills ($R^2=.27$, $F(2,50) = 8.20$, $p=.001$). According to statistical convention, this model had a large effect size ($f^2 = .37$; Cohen, 1992). Over and above parental education, home literacy

activities (i.e., mothers' and fathers' singing, telling stories, reading) was positively associated with children's receptive vocabulary skills ($\beta=.46$, $t(50)=4.74$, $p=.001$). That is, for every one standard deviation increase in home literacy activities, children's receptive vocabulary skills increased by .46 of a standard deviation.

Research question 2: Is the frequency of home literacy activities associated with toddlers' expressive language skills in a sample of low-income Latino immigrant families? To address this research question a multiple regression model was estimated to assess the association between the frequency of home literacy activities and children's expressive language skills over and above parental education. Model 2 (see Table 5), with two predictors (parental education and home literacy activities), accounted for 20% of the variance in children's receptive language skills ($R^2=.20$, $F(2,50) = 5.73$, $p=.006$). This model had a medium effect size ($f^2 = .25$; Cohen, 1992). Over and above parental education, home literacy activities was positively associated with children's expressive vocabulary skills ($\beta=.37$, $t(50)=2.72$, $p=.009$). That is, for every one standard deviation increase in home literacy activities, children's expressive vocabulary skills increased by .37 of a standard deviation.

Research question 3: Is the association between home literacy activities (i.e., mother and father reading, storytelling, and singing songs) and Latino toddlers' receptive language skills moderated by maternal language quality, maternal reading quality, children's engagement during reading, and children's interest in literacy activities? To address this research question a series of four multiple regression models were conducted to determine whether maternal language quality, maternal reading quality, child engagement during reading, and child interest in literacy activities moderated the association between home literacy activities and children's receptive language skills, controlling for parental education. Models 3 through 6

assessed the moderating influence of maternal language quality, maternal reading quality, child engagement during reading, and child interest in literacy activities, respectively.

Model 3 (see Table 6) examined the moderating influence of maternal language quality on the association between home literacy activities and children's receptive language skills. In step one, parental education (i.e., $\beta_1 X_1$), home literacy activities (i.e., $\beta_2 X_2$), and maternal language quality (i.e., $\beta_3 X_3$), were included as direct predictors of children's receptive language skills and in step two the interaction term (i.e., $\beta_2 X_2 \beta_3 X_3$) was added as a fourth predictor. The overall model explained 41% of the variance in children's receptive language skills ($R^2=.41$, $F(4,48) = 7.62$, $p<.001$). This model had a large effect size ($f^2 = .69$; Cohen, 1992). Over and above parental education, both the frequency of home literacy activities ($\beta=.35$, $t(48)=2.80$, $p=.008$) and mothers' language quality ($\beta=.47$, $t(48)=3.15$, $p=.003$) were positively associated with children's receptive language skills. However, mothers' language quality did not moderate the association between home literacy activities and children's receptive language skills ($p >.05$).

Model 4 (see Table 7) examined the moderating influence of maternal reading quality on the association between home literacy activities and children's receptive language skills. In step one, parental education (i.e., $\beta_1 X_1$), home literacy activities (i.e., $\beta_2 X_2$), and maternal reading quality (i.e., $\beta_3 X_3$), were included as direct predictors of children's receptive language skills and in step two the interaction term (i.e., $\beta_2 X_2 \beta_3 X_3$) was added as a fourth predictor. The overall model explained 43% of the variance in children's receptive language skills ($R^2=.43$, $F(4,48) = 6.99$, $p=.001$). This model had a large effect size ($f^2 = .75$; Cohen, 1992). Over and above parental education and mothers' reading quality, the frequency of home literacy activities was positively associated with children's receptive language skills ($\beta=.33$, $t(48)=2.37$, $p=.023$). Mothers' reading quality was not associated with children's receptive language skills. However, mothers'

reading quality moderated the association between home literacy activities and children's receptive language skills ($\beta=.32$, $t(48)=2.04$, $p=.049$). That is, the positive association between home literacy activities and children's receptive language skills was stronger when mothers engaged in higher quality reading (see Figure 2).

Model 5 (see Table 8) examined the moderating influence of child engagement during reading on the association between home literacy activities and children's receptive language skills. In step one, parental education (i.e., β_1X_1), home literacy activities (i.e., β_2X_2), and child engagement during reading (i.e., β_3X_3), were included as direct predictors of children's receptive language skills and in step two the interaction term (i.e., $\beta_2X_2\beta_3X_3$) was added as a fourth predictor. The overall model explained 33% of the variance in children's receptive language skills ($R^2=.33$, $F(4,48) = 5.25$, $p=.002$). This model had a large effect size ($f^2 = .49$; Cohen, 1992). Over and above parental education, children's receptive language skills were positively associated with the frequency of home literacy activities ($\beta=.33$, $t(48)=2.22$, $p=.032$) and child engagement during reading ($\beta=.29$, $t(48)=2.13$, $p=.046$). Children's engagement during reading did not moderate the association between home literacy activities and children's receptive language skills ($p >.05$).

Model 6 (see Table 9) examined the moderating influence of children's interest in literacy activities on the association between home literacy activities and children's receptive language skills. In step one, parental education (i.e., β_1X_1), home literacy activities (i.e., β_2X_2), and child interest in literacy activities (i.e., β_3X_3), were included as direct predictors of children's receptive language skills and in step two the interaction term (i.e., $\beta_2X_2\beta_3X_3$) was added as a fourth predictor. The overall model explained 40% of the variance in children's receptive language skills ($R^2=.40$, $F(4,48) = 7.06$, $p<.001$). This model had a large effect size ($f^2 = .67$;

Cohen, 1992). Controlling for parental education, children's receptive language skills were positively and significantly associated with the frequency of home literacy activities ($\beta=.42$, $t(48)=3.39$, $p=.002$) and children's interest in literacy activities ($\beta=.37$, $t(48)=3.03$, $p=.004$). Children's interest in literacy did not moderate the association between home literacy activities and children's receptive language skills ($p > .05$).

Research question 4: Is the association between home literacy activities (i.e., mother and father reading, storytelling, and singing songs) and Latino toddlers' expressive language skills moderated by maternal language quality, maternal reading quality, children's engagement during reading, and children's interest in literacy activities? To address this research question a series of four multiple regression models were conducted to determine whether maternal language quality, maternal reading quality, child engagement during reading, and child interest in literacy activities moderated the association between home literacy activities and children's expressive language skills, controlling for parental education. Models 7 through 10 assessed the moderating influence of maternal language quality, maternal reading quality, child engagement during reading, and child interest in literacy activities, respectively.

Model 7 (see Table 10) examined the moderating influence of maternal language quality on the association between home literacy activities and children's expressive language skills. In step one, parental education (i.e., $\beta_1 X_1$), home literacy activities (i.e., $\beta_2 X_2$), and maternal language quality (i.e., $\beta_3 X_3$), were included as direct predictors of children's expressive language skills and in step two the interaction term (i.e., $\beta_2 X_2 \beta_3 X_3$) was added as a fourth predictor. The overall model explained 29% of the variance in children's expressive language skills ($R^2=.40$, $F(4,48) = 4.41$, $p < .001$). This model had a large effect size ($f^2 = .67$; Cohen, 1992). Over and above parental education, children's expressive language skills were positively related to both

the frequency of home literacy activities ($\beta=.29$, $t(48)=2.08$, $p=.043$) and mothers' language quality ($\beta=.36$, $t(48)=2.16$, $p=.036$). Mothers' language quality did not moderate the association between home literacy activities and children's expressive language skills ($p > .05$).

Model 8 (see Table 11) examined the moderating influence of maternal reading quality on the association between home literacy activities and children's expressive language skills. In step 1, parental education (i.e., β_1X_1), home literacy activities (i.e., β_2X_2), and maternal reading quality (i.e., β_3X_3), were included as direct predictors of children's expressive language skills and in step 2 the interaction term (i.e., $\beta_2X_2\beta_3X_3$) was added as a fourth predictor. The overall model explained 56% of the variance in children's receptive language skills ($R^2=.56$, $F(4,48) = 11.70$, $p<.001$). This model had a large effect size ($f^2 = 1.27$; Cohen, 1992). Neither the frequency of home literacy activities nor mothers' reading quality were associated with children's expressive language skills ($p>.05$). However, mothers' reading quality moderated the association between home literacy activities and children's expressive language skills ($\beta=.53$, $t(48)=3.88$, $p<.001$). That is, the positive association between home literacy activities and children's expressive language skills was stronger when mothers engaged in higher quality reading (see Figure 2).

Model 9 (see Table 12) examined the moderating influence of child engagement during reading on the association between home literacy activities and children's expressive language skills. In step one, parental education (i.e., β_1X_1), home literacy activities (i.e., β_2X_2), and child engagement during reading (i.e., β_3X_3), were included as direct predictors of children's expressive language skills and in step two the interaction term (i.e., $\beta_2X_2\beta_3X_3$) was added as a fourth predictor. The overall model explained 46% of the variance in children's expressive language skills ($R^2=.46$, $F(4,48) = 9.08$, $p<.001$). This model had a large effect size ($f^2 = .85$;

Cohen, 1992). Over and above parental education and the frequency of home literacy activities, child engagement during reading was positively associated with children's expressive language skills ($\beta=.46$, $t(48)=3.72$, $p=.001$). Over and above the other model variables, the frequency of home literacy activities was not associated with children's expressive language skills ($p >.05$). However, children's engagement during reading significantly moderated the association between home literacy activities and children's expressive language skills ($\beta=.46$, $t(48)=3.53$, $p=.001$). That is, the positive association between home literacy activities and children's expressive language skills was stronger when children were more engaged during reading (see Figure 2).

Model 10 (see Table 13) examined the moderating influence of children's interest in literacy activities on the association between home literacy activities and children's expressive language skills. In step one, parental education (i.e., β_1X_1), home literacy activities (i.e., β_2X_2), and interest in literacy activities (i.e., β_3X_3), were included as direct predictors of children's expressive language skills and in step two the interaction term (i.e., $\beta_2X_2\beta_3X_3$) was added as a fourth predictor. The overall model explained 30% of the variance in children's expressive language skills ($R^2=.30$, $F(4,48) = 4.54$, $p=.004$). This model had a large effect size ($f^2 = .42$; Cohen, 1992).

Over and above parental education, children's expressive language skills were positively related to the frequency of home literacy activities ($\beta=.33$, $t(48)=2.43$, $p=.012$) and children's interest in literacy activities ($\beta=.30$, $t(48)=2.27$, $p=.028$). Children's interest in literacy did not moderate the association between home literacy activities and children's expressive language skills ($p >.05$).

Chapter 5: Discussion

This study examined the contribution of Latino immigrant mothers' and fathers' home literacy activities to their toddlers' receptive and expressive language skills. Additionally, it examined whether the association between home literacy activities and children's receptive and expressive language skills was strengthened by mothers' language and reading quality and by children's interest in literacy activities and engagement during reading. This is an important topic of study because there is little information about how Latino children, the largest and fastest growing ethnic minority group, develop language skills. That is, there is a dearth of research on the ways that low-income Latino parents, most of whom are first generation immigrants, stimulate and promote their children's language skills to set them on a positive developmental trajectory. Overall, this study found that Latino children who were frequently read to, sang to, or told stories to by their mothers and fathers had better receptive and expressive language skills than children who were not. Moreover, frequent participation in literacy activities was more strongly associated with language skills when mothers engaged in higher quality reading and when children were highly engaged (only for expressive language) during reading.

Before presenting key findings from this study, it is important to give a brief descriptive account of the families participating in this study. As in previous small-scale studies of Latino families, participating mothers and fathers were recent immigrants with lower levels of income and education (e.g., Schick & Melzi, 2015; Song et al., 2012). While Latino children are disproportionately more likely to grow up in socioeconomic disadvantage, the children in this study were more disadvantaged than national estimates of Latino samples. That is, mothers and fathers in this sample were more likely to be living in poverty, less likely to have attained a high school degree, and less likely to speak English. Despite this marked socioeconomic

disadvantage, the toddlers in this study were, on average, growing up in moderately supportive and stimulating home literacy environments as indexed by both the frequency and quality of home literacy activities. Consistent with past studies (Duursma et al., 2008; Malin et al., 2014), fathers in this study on average, reported engaging in home literacy activities less frequently than mothers. More than half of fathers reported singing songs and more than a third of fathers reported reading and telling stories to their children at least a few times per week. In contrast, approximately half of children had mothers that reported reading, singing songs, and telling stories to them almost everyday. Overall, mothers engaged in high levels of dialogic reading using, on average, one dialogic utterance (i.e., wh-question, recast, label) every ten seconds. On average, more than half of mothers' utterances were dialogic. This is surprising in light of research that suggests that low-SES mothers are less likely to engage in dialogic reading than their high-SES peers (Arnold, Lonigan, Whitehurst, & Epstein, 1994). Although there was wide variability in mothers' quality of language, on average, mothers spoke in short sentences (i.e., low grammatical complexity) and used few words with their children (i.e., small vocabulary size and complexity). This may be because mothers were trying to speak at a level comprehensible to their young children. Toddlers, on average, were highly engaged during reading (assessed as affectively positive, participating, and paying attention for most of the interaction) and their mothers reported that they were moderately interested in literacy activities. Toddlers' engagement and interest may reflect their participation in early childcare programs that aim to involve children and parents in literacy activities or may be a function of individual differences.

Despite a moderately supportive home environment, most children's receptive and expressive language skills fell below average in comparison to national norms. Scholars have argued that children who are learning two languages (i.e., dual language learners) have to learn

two lexicons (i.e., two words for each concept), which might delay language skills in comparison to their monolingual English peers (Lonigan, Farver, Nakamoto, & Eppe, 2013; Mancilla-Martinez & Lesaux, 2011). One problem with past studies is they have primarily assessed children's language skills in one language, thus potentially underestimating the abilities of children learning two languages. This study addressed this gap by conceptually assessing children's expressive language skills (i.e., credit was given for knowledge in both English and Spanish) and thus not penalizing children for not knowing a word in a specific language. This is currently considered best practice for the assessment of dual language learners (Hammer et al., 2011) Even so, Latino children's receptive and expressive language skills were lower than the monolingual norm for this age. Children's low language abilities likely reflect the fact that they lived in families with fewer resources in terms of education and income (Bornstein, 2002; Bradley & Corwyn, 2002). On average, less than half of participating mothers and fathers had a high school degree and their incomes were mostly below the poverty line. These low levels may also not be a fair comparison because the assessment used in this study was normed on a monolingual English speaking sample of children. Novel assessments normed on U.S. samples of dual language learners are critical to the advancement of research with this population. It is also worth mentioning that although most children's receptive and expressive language skills were below the national average, there was significant heterogeneity, with 15% of the sample of children scoring at or above the national average. That is, there is wide variability in the language skills of children growing up in disadvantage that should be capitalized upon by programs and policies aimed at narrowing the income-achievement gap.

The main goal of this study was to examine if and when home literacy activities foster Latino toddlers' language skills. The findings support the hypothesis that, over and above the

contribution of parental education, children who participate more frequently in literacy activities at home (i.e., reading, singing, storytelling) are more likely to have higher expressive and receptive language skills than children who do not. This finding supports the Home Literacy Model (Sénéchal & LeFevre, 2002) and is consistent with past research with both Latino and non-Latino samples that suggests that frequent parent-child reading is important for children's language development (e.g., Bus et al., 1995; Gardner-Neblett et al., 2012; Roberts, et al., 2005). These findings also extend the Home Literacy Model by showing that parents can promote language development in non-traditional ways such as telling stories and singing (Baker, 2013).

The second goal of this study was to test how specific characteristics of both mothers (i.e., language quality, reading quality) and children (engagement during reading, interest in literacy activities) might bolster the contribution of frequent home literacy activities to children's receptive and expressive language skills. The findings of this study partially support these hypotheses. Mothers' language quality did not moderate the association between frequent home literacy activities and children's receptive or expressive language skills. That is, the association between home literacy activities and children's expressive or receptive language skills was not stronger when mothers spoke with more grammatical complexity, more vocabulary diversity and used larger overall vocabularies with their children. One possible explanation for this finding may be that mothers' language quality is not context specific (Salo et al., 2015). That is, the home literacy context may not elicit more complex grammar or vocabulary than other mother-child interactions. Another explanation is that mothers' language was not of high enough quality to make a difference. That is, there may be a critical threshold after which mothers' language quality does make frequent home literacy activities more effective.

As hypothesized, the association between frequent home literacy activities and Latino toddlers' receptive and expressive language skills was stronger when mothers engaged in higher quality reading (i.e., labels, recasts, wh-questions) than when they engaged in lower quality reading. These findings echo a large body of research highlighting the importance of parents' dialogic reading for children's language skills (e.g., Sénéchal et al., 1997; Whitehurst et al., 1994). Research with both low-income and middle-income mothers suggests that the reading context may specifically elicit these higher quality dialogic utterances (Hoff-Ginsburg, 1991; Weizman & Snow, 2001). However, these studies advance the field by characterizing reading quality as a moderating influence, rather than as a direct influence. In doing so this study examines the interaction between frequency and quality of reading. These findings might influence the development of new interventions focused on promoting interactive and highly engaging mother-child literacy activities. Evidence suggests that reading quality can be effectively taught in an intervention setting (Whitehurst et al., 1994). Teaching parents to read in a dialogic way that encourages children's participation and captures their attention may be an important addition to programs aimed at increasing parental participation in their children's skills. Results from this study also align with Sénéchal's (1997) finding that maternal reading quality more strongly contributed to children's expressive language than receptive language skills. The model predicting expressive language explained more of the variance (59%) than the model predicting receptive language (43%). This finding should be further explored in order to examine if and why reading quality has more of an influence on expressive than receptive language skills. Taken together, these findings highlight dialogic reading as a potential strength of mothers that should be capitalized on in the design of future programs and interventions.

The findings from this study also support the hypothesis that the association between frequent home literacy activities and Latino toddlers' expressive language skills is stronger when toddlers are more engaged (i.e., affectively positive, attentive, and participating) during reading than when they were less engaged during reading. However, children's engagement during reading did not strengthen the association between home literacy activities and children's receptive language skills. One possible explanation for this discrepancy is that children who are more engaged in the reading activity show it by asking questions and speaking aloud (i.e., using expressive language). This finding is important because it highlights children's engagement during reading as a potential point of intervention. While mothers' contributions are important, promoting and increasing children's engagement during literacy activities can strengthen the experiences they get at home. At early childcare centers there can be more emphasis on getting children engaged in literacy activities. For example, in addition to what high quality early care centers typically provide – reading corners, accessible books, colorful environments, etc., these findings highlight the importance of peaking children's engagement in other novel ways. Future research is needed that examines the development of early engagement and its environmental malleability.

This study also hypothesized that children's interest in literacy activities would bolster the association between frequent home literacy activities and children's language skills. However, the association between home literacy activities and Latino toddlers' receptive and expressive language skills was not stronger when toddlers were more interested in literacy activities (e.g., ask to be read to) than when they were less interested in literacy activities. There are several possible explanations. First, this measure was mother-reported. Mothers may be overestimating their children's interest or not accurately able to gauge it altogether. Second,

because this measure was not observational it does not reflect children's interest while participating in a literacy activity but rather a more stable or global assessment of children's interest in literacy activities. As a result it may reflect a more intrinsic interest rather than something manipulated by frequent engagement in home literacy activities. Finally, it may be that interest in literacy or literacy activities is more important for fostering code-related skills than language skills (Fritjers et al., 2000).

Despite its strengths, this study has several limitations. First, this study utilized a small convenience sample of Latino children and their parents. Notably, the models tested in this study produced large effect sizes, specifically in comparison to other similar studies in this literature. This may be due to the fact that all children in the study were enrolled in high quality center-based programs that encourage family engagement and offer parenting workshops. Families were primarily of Salvadorian and Mexican descent. This is reflective of the Latino population in the metropolitan Washington, D.C. area but it is not reflective nationally. Further, nearly all families in the study were low-income and it is difficult to disentangle findings specific to Latino families and findings specific to low-income families. Second, this study was unable to collect observational data from participating fathers. Thus, it is unknown if the moderating pathways examined in this study are the same for mothers and fathers. Despite the challenges of conducting research with fathers, future studies of Latino families should attempt to collect both survey and observational data from both mothers and fathers. Third, due to sample size restraints a series of multiple regression models were conducted rather than including all key study variables in a path analysis model. Thus, there are issues of shared variance that could not be addressed in this small-scale study. Future research should look at the influence of mother and child characteristics over and above one another. Fourth, the "Frog, Where Are You" wordless

picture book chosen for the booksharing task may not be a natural task reflective of how mothers normally engage their children at home. It was chosen because it has been used in a wealth of studies and, as a wordless picture book, would not present problems for parents with low literacy skills. Finally, this study relied on concurrent, rather than longitudinal, data. As a result it is difficult to discern both the direction of association and whether these associations hold over time.

Limitations aside, findings from this study set the stage for a number of important questions that should be examined in future research. First, future research should attempt to collect observational data on fathers in order to understand if the moderating pathways for mothers and fathers are the same. Second, additional work focused on the home literacy environment should look beyond mothers and fathers to include all caregivers in the home that engage with the child. Children often live with older siblings, grandparents, or other relatives that are often not accounted for in research on the home environment. Third, research on dual language learners should examine how a parents' choice of language (i.e., English or Spanish) moderates the association between home literacy activities and children's language skills. Finally, new measures that examine the language abilities of dual language learners are critical to fully understanding the skills of children in immigrant families.

This study's findings add to the literature in a number of ways. First, this study was conducted with Latino toddlers, an important but understudied population. Given changing demographics it is imperative to examine within-group variability among low-income Latino immigrant families and identify potential strengths that can be capitalized on for intervention. Collecting data with low-income families, generally, is incredibly challenging. Documentation issues, language barriers, and cultural differences further complicate the recruitment of low-

income Latino immigrant families (Rodriguez, Rodriguez, & Davis, 2006). Because of these issues there are few studies with both survey and observational data of Latino immigrant families. Second, this study included both mothers and fathers. Collecting data with fathers is also difficult and because of this many studies choose not to include them altogether (Mitchell et al., 2007). Yet, research suggests that when fathers engage their children in literacy activities they make important contributions to their children's language skills (Baker, 2013). By collecting data from both mothers and fathers this study was able to capture children's exposure to home literacy activities and the contribution of those activities to their receptive and expressive language skills. Talking with fathers about their unique contributions to their children's development is an important strategy and tool for fostering high levels of father participation in studies. Third, this study moved beyond reading to explore other home literacy activities such as singing and storytelling that may be more culturally relevant for Latino families. As a result, this study was able to more fully understand the contexts through which Latino toddlers are exposed to language. Finally, this study moved beyond direct associations to also examine mechanisms. In doing so, this study was able to examine the specific conditions under which home literacy activities are important for children's receptive and expressive language skills. Taken together these findings highlight the strengths of not only Latino parents but also their children.

Table 1

List of Study Measures

| <u>Construct</u> | <u>Role in Study</u> | <u>Method of Assessment</u> | <u>Measure</u> | <u># of Items</u> |
|---------------------------------------|----------------------|-----------------------------|--|-------------------|
| Receptive Language | Dependent Variable | Direct Assessment | Mullen Scales of Early Learning, Receptive Language | -- |
| Expressive Language | Dependent Variable | Direct Assessment | Mullen Scales of Early Learning, Expressive Language | -- |
| Home Literacy Activities | Independent Variable | Mother and Father Report | Parent Activities | 3 (per parent) |
| Child Interest in Literacy Activities | Moderating Variable | Mother Report | Home Literacy Environment Questionnaire, Children's Literacy Interest subscale | 5 |
| Child Engagement During Reading | Moderating Variable | Observed | Children's Interest in Reading coding scheme | -- |
| Mother Reading Quality | Moderating Variable | Observed | Wh-questions Recasts of child Labels | -- |
| Maternal Language Quality | Moderating Variable | Observed | Vocabulary Diversity Vocabulary Size Grammatical Diversity | -- |
| Parental Education | Control Variable | Mother and Father Report | Educational Attainment | 1 (per parent) |

Table 2

Descriptive Statistics

| <u>Measure</u> | <u>Mothers</u> <u>(%)</u> | <u>Fathers</u> <u>(%)</u> | <u>M(SD)</u> | <u>Range</u> |
|-------------------------------|------------------------------|------------------------------|--------------|--------------|
| Country of Origin | | | | |
| El Salvador | 55 | 54 | | |
| Mexico | 17 | 21 | | |
| Honduras | 11 | 13 | | |
| Guatemala | 6 | 5 | | |
| Other | 11 | 7 | | |
| Education Level | | | | |
| 8 years or less | 36 | 36 | | |
| Some high school | 19 | 18 | | |
| High school degree/equivalent | 25 | 23 | | |
| More than high school | 21 | 23 | | |
| Employed | 66 | 96 | | |
| Language | | | | |
| Spanish only | 72 | 54 | | |
| Spanish and English | 28 | 46 | | |
| Frequency of Singing Songs | | | | |
| Never | 0 | 10 | | |
| Rarely | 4 | 13 | | |
| 2-3 times/month | 25 | 18 | | |
| 2-3 times/week | 30 | 21 | | |
| Almost every day | 42 | 39 | | |
| Frequency of Telling Stories | | | | |
| Never | 4 | 23 | | |

| | | | | | |
|---------------------------------------|------------------|----|----|--------------|---------------|
| | Rarely | 13 | 26 | | |
| | 2-3 times/month | 17 | 15 | | |
| | 2-3 times/week | 25 | 18 | | |
| | Almost every day | 42 | 18 | | |
| Frequency of Reading | | | | | |
| | Never | 0 | 21 | | |
| | Rarely | 6 | 23 | | |
| | 2-3 times/month | 13 | 21 | | |
| | 2-3 times/week | 28 | 18 | | |
| | Almost every day | 53 | 18 | | |
| Home Literacy Activities | | | | 15.20(5.79) | 5 to 24 |
| Child Interest in Literacy Activities | | | | 15.29(3.99) | 5 to 23 |
| Child Reading Engagement | | | | 11.13(1.88) | 5.75 to 13.88 |
| Maternal Reading Quality | | | | .10(.05) | .01 to .19 |
| Maternal Language Quality | | | | -.027(2.58) | -4.06 to 6.96 |
| Child Expressive Language | | | | 39.13(10.32) | 19 to 72 |
| Child Receptive Language | | | | 38.79(10.90) | 20 to 70 |

Table 3

Bivariate Correlations

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|--|------------------|------------------|-------|-------|-------|--------|------|------|------|------|----|
| 1. Home literacy activities | 1 | | | | | | | | | | |
| 2. Maternal language quality | .36** | 1 | | | | | | | | | |
| 3. Maternal reading quality | .11 | .33* | 1 | | | | | | | | |
| 4. Child engagement during reading | .24 ^t | .40** | .35* | 1 | | | | | | | |
| 5. Child interest in literacy activities | .08 | -.01 | .23 | .09 | 1 | | | | | | |
| 6. Receptive language | .42** | .50*** | .30* | .34* | .42** | 1 | | | | | |
| 7. Expressive language | .48*** | .46** | .49** | .37** | .30* | .65*** | 1 | | | | |
| 8. Parental education | .21 | .26 ^t | .04 | .10 | .15 | .26* | .27* | 1 | | | |
| 9. Child is female | -.07 | .13 | .06 | .05 | -.06 | .21 | .10 | -.06 | 1 | | |
| 10. Father is resident | .34* | .19 | -.07 | .03 | -.08 | -.10 | -.13 | -.01 | -.19 | 1 | |
| 11. Mother is employed | -.31* | -.09 | .25 | -.04 | -.09 | -.21 | .06 | .09 | -.03 | -.20 | 1 |

Note. $p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 4

Model 1: Receptive Language Skills Predicted by Home Literacy Activities, Controlling for Parental Education

| | Step 1 | | Step 2 | |
|--------------------------|------------------|-----------|-------------------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .26 ^t | .42 | .17 | .38 |
| Home literacy activities | | | .46 ^{**} | .08 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .27

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 5

Model 2: Expressive Language Skills Predicted by Home Literacy Activities, Controlling for Parental Education

| | Step 1 | | Step 2 | |
|--------------------------|------------------|-----------|-------------------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .27 ^t | .30 | .19 | .29 |
| Home literacy activities | | | .37 ^{**} | .06 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .20

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 6

Model 3: Maternal Language Quality as a Moderator of the Association Between Home Literacy Activities and Receptive Language Skills, Controlling for Parental Education

| | Step 1 | | Step 2 | | Step 3 | |
|---|------------------|-----------|---------|-----------|---------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .26 ^t | .42 | .09 | .36 | .10 | .36 |
| Home literacy activities | | | .34** | .08 | .35** | .08 |
| Maternal language quality | | | .40** | .49 | .47** | .56 |
| Home literacy activities X Maternal language quality | | | | | -.13 | .09 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .41; R^2 for step 3 = .41

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 7

Model 4: Maternal Reading Quality as a Moderator of the Association Between Home Literacy Activities and Receptive Language Skills, Controlling for Parental Education

| | Step 1 | | Step 2 | | Step 3 | |
|--|------------------|-----------|---------|-----------|---------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .26 ^t | .42 | .20 | .41 | .16 | .40 |
| Home literacy activities | | | .43** | .08 | .33* | .08 |
| Maternal reading quality | | | .28* | .57 | .14 | .63 |
| Home literacy activities X Maternal reading quality | | | | | .32* | .08 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .37; R^2 for step 3 = .43

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 8

Model 5: Child Engagement During Reading as a Moderator of the Association Between Home Literacy Activities and Receptive Language Skills, Controlling for Parental Education

| | Step 1 | | Step 2 | | Step 3 | |
|--|------------------|-----------|---------|-----------|---------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .26 ^t | .42 | .16 | .38 | .15 | .38 |
| Home literacy activities | | | .40** | .08 | .33* | .09 |
| Child engagement | | | .24 | .27 | .29* | .28 |
| Home literacy activities X Child engagement | | | | | .16 | .05 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .31; R^2 for step 3 = .33

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 9

Model 6: Child Interest in Literacy Activities as a Moderator of the Association Between Home Literacy Activities and Receptive Language Skills, Controlling for Parental Education

| | Step 1 | | Step 2 | | Step 3 | |
|--|------------------|-----------|---------|-----------|---------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .26 ^t | .42 | .12 | .36 | .13 | .36 |
| Home literacy activities | | | .44** | .07 | .42** | .08 |
| Child interest | | | .35** | .11 | .37** | .11 |
| Home literacy activities X Child interest | | | | | -.11 | .02 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .39; R^2 for step 3 = .40

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 10

Model 7: Maternal Language Quality as a Moderator of the Association Between Home Literacy Activities and Expressive Language Skills, Controlling for Parental Education

| | Step 1 | | Step 2 | | Step 3 | |
|---|------------------|-----------|---------|-----------|---------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .27 ^t | .30 | .13 | .28 | .13 | .29 |
| Home literacy activities | | | .28* | .06 | .29* | .06 |
| Maternal language quality | | | .31* | .39 | .36* | .47 |
| Home literacy activities X Maternal language quality | | | | | -.07 | .08 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .29; R^2 for step 3 = .29

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 11

Model 8: Maternal Reading Quality as a Moderator of the Association Between Home Literacy Activities and Expressive Language Skills, Controlling for Parental Education

| | Step 1 | | Step 2 | | Step 3 | |
|--|------------------|-----------|-------------------|-----------|--------------------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .27 ^t | .30 | .23 | .31 | .17 | .26 |
| Home literacy activities | | | .27 ^t | .06 | .10 | .05 |
| Maternal reading quality | | | .45 ^{**} | .42 | .20 | .42 |
| Home literacy activities X Maternal reading quality | | | | | .53 ^{***} | .05 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .38; R^2 for step 3 = .56

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 12

Model 9: Child Engagement During Reading as a Moderator of the Association Between Home Literacy Activities and Expressive Language Skills, Controlling for Parental Education

| | Step 1 | | Step 2 | | Step 3 | |
|--|------------------|-----------|---------|-----------|---------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .27 ^t | .30 | .18 | .27 | .15 | .25 |
| Home literacy activities | | | .29* | .06 | .08 | .06 |
| Child engagement | | | .32* | .20 | .46** | .18 |
| Home literacy activities X Child engagement | | | | | .46** | .03 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .30; R^2 for step 3 = .46

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

Table 13

Model 10: Child Interest in Literacy Activities as a Moderator of the Association Between Home Literacy Activities and Expressive Language Skills, Controlling for Parental Education

| | Step 1 | | Step 2 | | Step 3 | |
|--|------------------|-----------|---------|-----------|---------|-----------|
| | β | <i>SE</i> | β | <i>SE</i> | β | <i>SE</i> |
| Parental education | .27 ^t | .30 | .16 | .28 | .18 | .28 |
| Home literacy activities | | | .36** | .06 | .33* | .06 |
| Child interest | | | .27* | .08 | .30* | .09 |
| Home literacy activities X Child interest | | | | | -.17 | .02 |

Note. R^2 for step 1 = .07; R^2 for step 2 = .27; R^2 for step 3 = .30

$p < .10^t$ $p < .05^*$ $p < .01^{**}$ $p < .001^{***}$

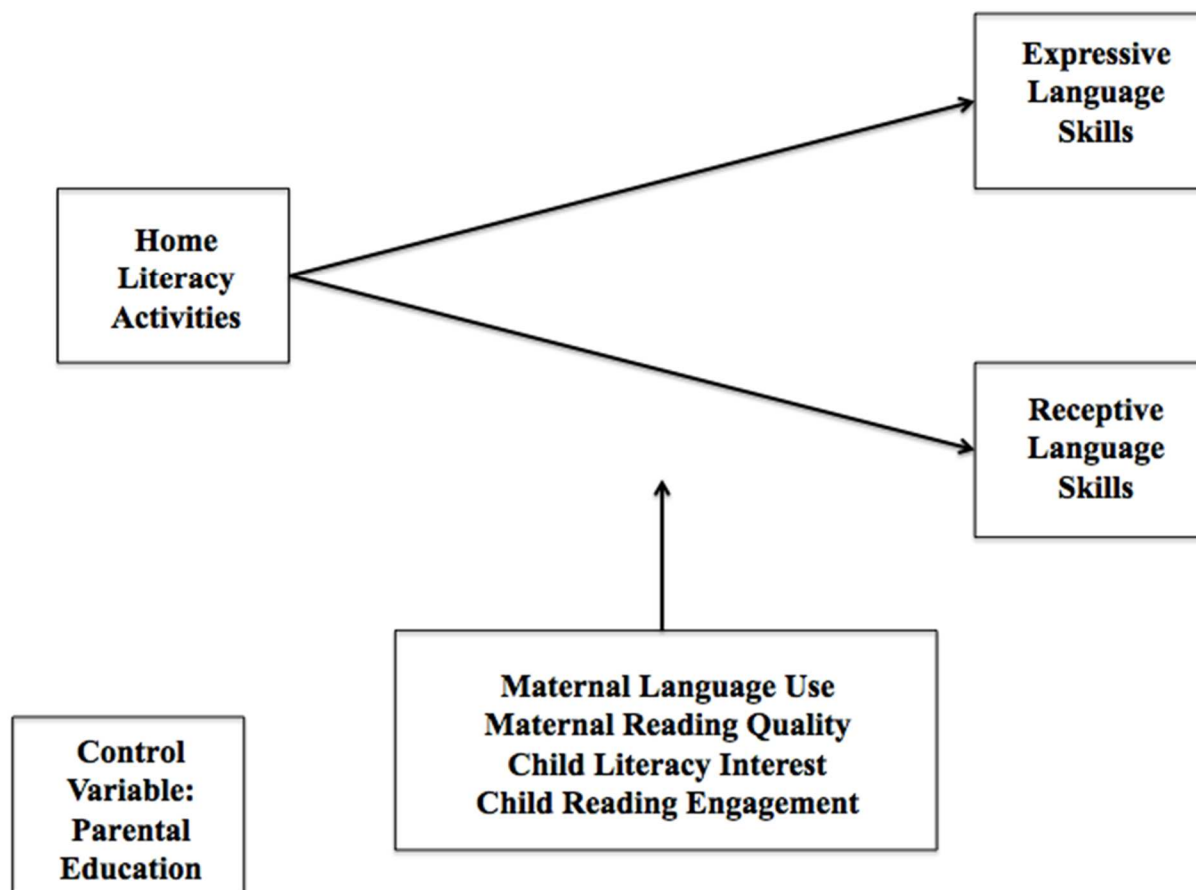


Figure 1: Conceptual model of study.

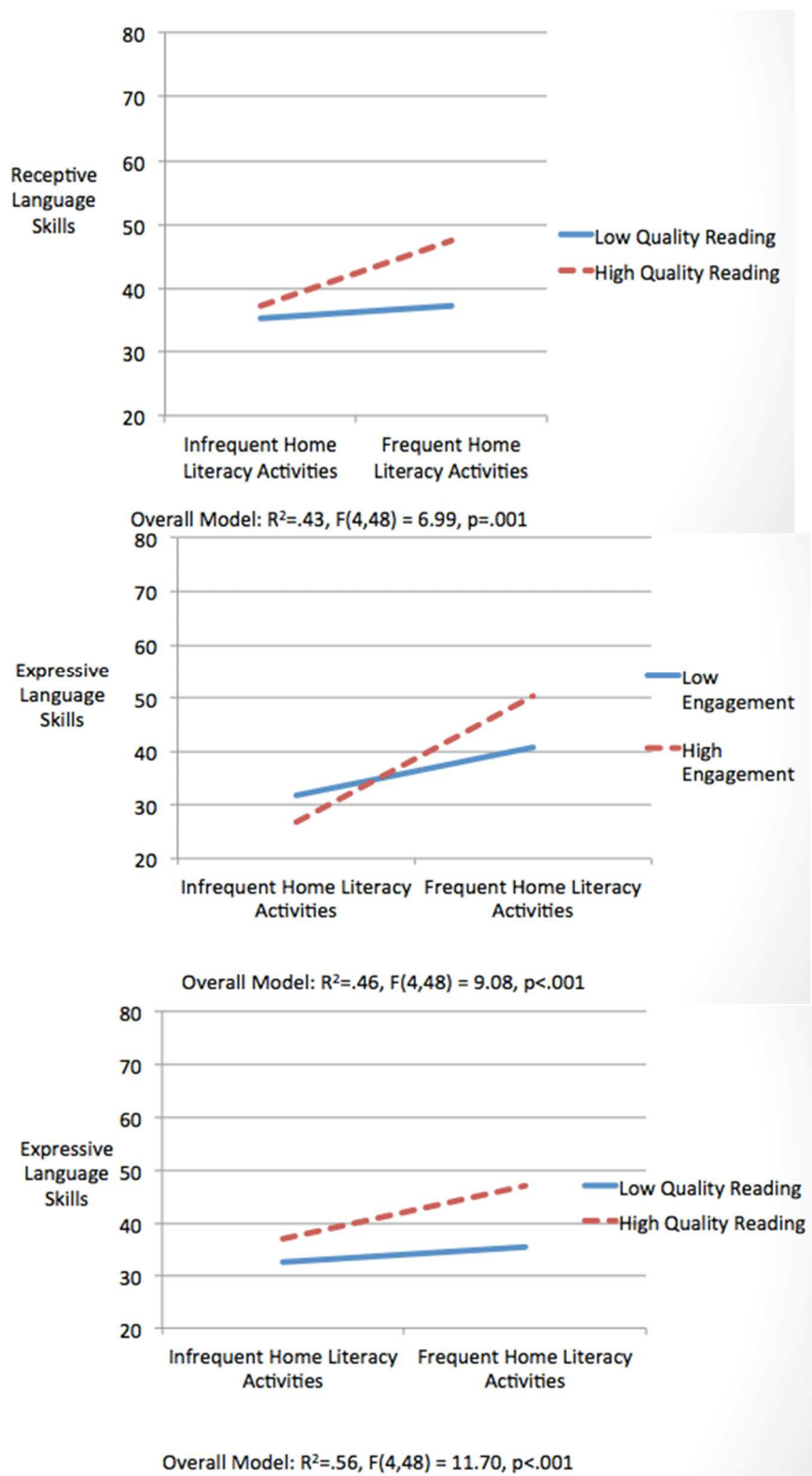


Figure 2: Significant moderation analyses

Appendix A: Consent Forms

CONSENT FORM- ENGLISH (also available in Spanish)

| | |
|---------------------------------|--|
| Purpose of the Study | <p><i>This is a research project being conducted by Dr. Natasha J. Cabrera at the University of Maryland, College Park. We are inviting you to participate in this research project because you are a Latino parent. The purpose of this research project is to explore parenting issues and experiences unique to the population of Latino families. This study will give us insight into how Latino mothers and fathers understand parenting and the type of the relationships they have with their children and partners. This study will also provide data on the strengths and positive practices of Latino families raising a young child in the U.S. This is an issue that is understudied in this population.</i></p> |
| Procedures | <p><i>The procedures involve one in-depth, semi-structured interview, along with observations and field notes following the interview. The interview will last approximately two hours and will occur once a year for 3 years. Interviews will take place in your home or at the center and will be scheduled at times most convenient for you and your family. During the interviews, you will be asked about past relationships, economic experiences, and beliefs about family planning. In addition, you will be asked about your current relationships and economic experiences in relation to your parenting, as well as aspects of your child's development, such as vocabulary use. You do not have to answer any question that makes you uncomfortable. Also, you and your child will be observed in interaction (playing or reading together) for about 30 minutes. The purpose of the videotaped portion of the study will be used to examine how fathers and mothers play with their children and how children's language and play behaviors develop over time. In addition, for this study we would like to see how your child interacts with some toys (all the toys we will use are non-toxic, clean and safe, and have been washed) and how s/he interacts with the researchers in tasks such as building a tower and cleaning up. Lastly, your child's teacher will complete a checklist that tells us how your child behaves in the classroom (for example, who your child plays with, how he behaves in class, and if he plays well with others).</i></p> <p><i>You will receive a toy for your child to thank you for your time.</i></p> |
| Potential Risks and Discomforts | <p><i>There are no known risks associated with participating in this research project. You may be upset by some of the questions we will ask you, you may choose to stop responding at any time, or to skip any questions that you do not want to answer.</i></p> |

| | |
|--------------------------------|---|
| Potential Benefits | <p><i>This research is not designed to help you personally, but the results may help the investigator learn more about unique to the population of Latino families and their parenting experiences. We hope that, in the future, other people might benefit from this study through improved understanding specific aspects of the Latino population in the US.</i></p> |
| Confidentiality | <p><i>We will do our best to keep your personal information confidential. To help protect your confidentiality, we will take any identifying information out of the documented focus group, using only an identifier number. We will lock the information in cabinets in our offices, and will use password-protected computer files for the research.</i></p> <p><i>If we write a report or article about this research project, your identity will be protected to the maximum extent possible.</i></p> <p><i>In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authorities information that comes to our attention concerning child abuse or neglect or potential harm to you or others.</i></p> |
| Certificate of Confidentiality | <p><i>We will do everything we can to keep others from learning about your participation in this study and the information you share with us. To help us further protect your privacy we have obtained a Certificate of Confidentiality from the United States Department of Health and Human Services (DHHS).</i></p> <p><i>With this Certificate, we cannot be forced (for example by court order or subpoena) to disclose information that may identify you in any federal, state, local, civil, criminal, legislative, administrative, or other proceedings. The researchers will use the Certificate to resist any demands for information that would identify you or your child except to prevent serious harm to you or others, and as explained below.</i></p> <p><i>You should understand that a Certificate of Confidentiality does not prevent you, or a member of your family, from voluntarily releasing information about yourself or your child, or your involvement in this study.</i></p> <p><i>If an insurer or employer learns about your participation, and obtains your consent to receive research information, then we may not use the Certificate of Confidentiality to withhold this information. This means that you and your family must also actively protect your own privacy.</i></p> <p><i>You should understand that we will in all cases, take the necessary action, including reporting to authorities, to prevent serious harm to yourself, children, or others. For example, in the case of child abuse or neglect.</i></p> <p><i>A Certificate of Confidentiality does not represent an endorsement of the research study by the Department of Health and Human Services or the National Institutes of Health.</i></p> |

| | | |
|---------------------------------|--|--|
| Right to Withdraw and Questions | <p><i>Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.</i></p> <p><i>If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator, Dr Natasha Cabrera at 3304 Benjamin Building, University of Maryland College Park, phone 301-405-2801 or at ncabrera@umd.edu.</i></p> | |
| Participant Rights | <p><i>If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:</i></p> <p style="text-align: center;">University of Maryland College Park Institutional Review Board Office 1204 Marie Mount College Park, Maryland, 20742 E-mail: irb@umd.edu Telephone: 301-405-0678</p> <p><i>This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.</i></p> | |
| Statement of Consent | <p><i>Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form.</i></p> <p><input type="checkbox"/> <i>Yes I agree</i></p> <p><input type="checkbox"/> <i>No I do not agree</i></p> <p><i>If you agree to participate, please sign your name below.</i></p> | |
| Signature and Date | PARTICIPANT NAME [Please Print] | |
| | PARTICIPANT SIGNATURE | |
| | DATE | |

ADDITIONAL CONSENT TO BE VIDEOTAPED:

As part of this research project, we will make a videotape recording of you interacting with your child. This data will be used for research purposes only, and after the data collection is over, they will be permanently stored in a private archive.

This consent is entirely separate from your consent to participate in the interview and may be withdrawn at any time in the future.

The compensation discussed earlier represents full compensation for participation in the study by you and your child and no additional compensation will be provided.

Please check one box and sign the form.

Additional Consent Given

Additional Consent Not Given

If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:

University of Maryland College Park, Institutional Review Board Office, 1204 Marie Mount College Park, Maryland, 20742. E-mail: irb@umd.edu, Telephone: 301-405-067

Participant's Name

Child's Name

Participant's Signature

Date

Interviewer's Signature

Date

Parent's Signature if Participant is under 18 years of age

Date

**INFORMED CONSENT FOR ADDITIONAL
RESEARCH AND EDUCATIONAL USES**

In the future, the video tapes will only be viewed or used for educational purposes and might be reproduced and shown at conferences, workshops, and for other research purposes, with the understanding that no identifying information will be used.

The compensation discussed earlier represents full compensation for participation in the study by you and your child and no additional compensation will be provided.

Please check one box and sign the form.

[] Additional Consent Given

[] Additional Consent Not Given

If you have questions about your rights as a research participant or wish to report a research-related injury, please contact:

University of Maryland College Park, Institutional Review Board Office, 1204 Marie Mount College Park, Maryland, 20742. E-mail: irb@umd.edu, Telephone: 301-405-0678

Participant's Name

Child's Name

Participant's Signature

Date

Interviewer's Signature

Date

Parent's Signature if Participant is under 18 years of age Date

Appendix B: Child Language Skills Protocol

2 Sub-scales:

- 1) Expressive Language
- 2) Receptive Language

[Interviewer: “I would like to show (CHILD) a few toys and ask (him/her) to play with me. Please sit next to your child, but please don’t repeat what I say and don’t show or tell your child what to do. We would like to see (CHILD’S) response no matter what it is. Some of the things I will show him/her will be easy and some more difficult for children of his/her age. We don’t expect (CHILD) to be able to do all the tasks. They are designed for a wide range of children. All the toys we will use are non-toxic, clean and safe, and have been washed.”]

PROCEED WITH MULLEN ITEMS

Appendix C: Home Literacy Activities

[Interviewer: “Now I will ask you about some of the *activities* that you and (*child’s name*) *do together*, as well as about *how often* you do these things. To make it easier, here are the options. When asked, choose any of them to answer.”]

| <i>INTERVIEWER: For each item, ask: How many times do you:</i> | Mother | Father |
|---|--|--|
| B1. Sing songs, listen to music, dance, or perform such games with hands with (<i>child’s name</i>)? | 0= Never 1 = Rarely 2 = 2-3 times a month 3 = 2-3 times a week 4 = Almost everyday | 0= Never 1 = Rarely 2 = 2-3 times a month 3 = 2-3 times a week 4 = Almost everyday |
| B1.1. In what language(s)? | | |
| B2. Read or look at pictures in a book with (<i>child’s name</i>)? | 0= Never 1 = Rarely 2 = 2-3 times a month 3 = 2-3 times a week 4 = Almost everyday | 0= Never 1 = Rarely 2 = 2-3 times a month 3 = 2-3 times a week 4 = Almost everyday |
| B2.1 In what language(s)? | | |
| B3. Tell stories to (<i>child’s name</i>)? | 0= Never 1 = Rarely 2 = 2-3 times a month 3 = 2-3 times a week 4 = Almost everyday | 0= Never 1 = Rarely 2 = 2-3 times a month 3 = 2-3 times a week 4 = Almost everyday |
| B3.1. In what language(s)? | | |

Appendix D: Child Interest in Literacy

[Interviewer: “Now I have some questions about activities related to reading. It is possible that some of the phrases appear to be for children who are younger or older than your child. Please try to respond as best you can to all of the questions.”]

| | | Never | Once per month | Once per week | A few times per week | Daily |
|-----|--|-------|----------------|---------------|----------------------|-------|
| C1. | About how many times does (CHILD’S NAME) ask you or another person to read him/her a book? | 1 | 2 | 3 | 4 | 5 |
| C2. | About how many times does (CHILD’S NAME) look at books by himself/herself? | 1 | 2 | 3 | 4 | 5 |
| C3. | About how many times does (CHILD’S NAME) ask you what printed words mean? | 1 | 2 | 3 | 4 | 5 |
| C4. | About how many times does (CHILD’S NAME) attempt to write words? | 1 | 2 | 3 | 4 | 5 |
| C5. | About how many times does (CHILD’S NAME) play games with alphabet letters? | 1 | 2 | 3 | 4 | 5 |

Appendix E: Child Engagement During Reading Coding

Micro-coded at 30s intervals and then averaged to create one score of child engagement.

Availability: Based on child's proximity to mother and visual attention to the book

- 1 Not available for book reading (child not attending to reading material for whole interval)
- 2 Slightly available (child not attending to book for more than half the interval)
- 3 Somewhat available (child attending to book for about half the interval)
- 4 Mostly available (child attending to book for more than half the interval)
- 5 Constant availability for book reading (child appears riveted to the book for entire interval)

Affect: Enjoyment during shared reading

- 1 Extremely negative affect (child crying or protesting during interval)
- 2 Somewhat negative affect (child appears upset, protesting sometimes)
- 3 Neutral affect (child appears to have neither a positive nor negative affect)
- 4 Somewhat positive affect (child appears happy, laughing or smiling sometimes)
- 5 Extremely positive affect (child laughing or smiling frequently during the interval)

Active Participation: Child's involvement during shared reading

- 1 No participation (child made no contributions during the interval)
- 2 A little participation (child made few contributions during the interval; 1-2 verbal or physical contributions)
- 3 Average participation (child participated an average amount during the interval; 3 verbal or physical contributions)
- 4 Much participation (child participated somewhat frequently throughout the interval; 4 verbal or physical contributions)
- 5 High participation (child participated a lot; more than 4 verbal comments or more than 4 physical acts of gesturing, turning book page, etc.)

Appendix F: Parent-Child Reading Interaction Protocol

Preparation

Set up suitcase with:

- a. Book
- b. Camera
- c. Tripod
- d. Microphone
- e. Camera light
- f. Consent forms
- g. Gift for child
- h. Blanket

[Interviewer: “Thank you for agreeing to meet with us today. We are so happy to meet with you and (CHILD) again as part our project. As I mentioned on the phone, this activity will take approximately 20 minutes.”]

Place blanket on floor and set up tripod with camera in view of the blanket.

[Interviewer: “Now we’d like you to join your child and share this book with him/her as you normally would”.]

It is important that parent and child face the camera and that the frame includes both of their faces.

Appendix G: Maternal Reading Quality Coding

Counts of the following types of utterances used by mothers. Because length of the mother-child reading interactions varied the total number of wh-questions, recasts, and labels was divided by the number of seconds spent reading the book.

Wh-questions: Who, what, where, when or why questions

Examples:

Mother: "What is the frog doing?"

Mother: "Where is the boy going?"

Mother: "Why is the boy sad?"

Recasts: Repeating/extending the child's previous utterance

Examples:

Child: "A frog." Mother: "Yes, that is a frog."

Child: "The boy fell." Mother: "That's right, the boy fell down and hurt himself."

Labels: Identifying the names of people, places, or things.

Examples:

Mother: "Look, it's a frog."

Mother: "That's a spider."

Appendix H: Parent Demographic Questions

What's your Date of Birth? _____

What language(s) do you speak to your child?

- a. English b. Spanish c. English and Spanish

What is your nationality?

- a. Mexican b. Salvadoran c. Guatemalan
 d. Honduran e. Colombian f. Puerto Rican
 g. Other (specify) _____

Where were you born? _____

(If foreign born) How old were you when you came to the United States? _____

Why did you/your family move to the US? _____

How many years of school have you completed? _____ years

- <9 years Some high school (did not graduate)
 High School diploma/GED Some university
 College Degree Graduate degree

How many years of school were completed in the U.S.? _____ years

- <9 years Some high school (did not graduate)
 High School diploma/GED Some university
 College Degree Graduate degree

Are you employed? Yes 01 No 00

(If yes) part-time or full-time?

1. Part-time Employment
 2. Full-time employment

How many hours per week do you work? _____

How long have you had this job? _____

How many children do you have? _____

What other family members live with you? _____

Are you currently married for the first time, widowed, divorced, separated, remarried, or have you never been married?

CIRCLE ONE

| | |
|----------------------------|----|
| Married for the first time | 01 |
| Widowed | 02 |
| Divorced | 03 |
| Separated | 04 |
| Never Married | 05 |
| Remarried | 06 |

Are you (married to/widowed from/divorced from/separated from/remarried) to the father/mother of (CHILD) or someone else?

CIRCLE ONE

| | |
|-----------------------------|----|
| Focal child's father/mother | 01 |
| Someone else | 02 |

Were you married to (CHILD'S FATHER/MOTHER) at the time of (CHILD'S) birth?

| | |
|-----|----|
| Yes | 01 |
| No | 00 |

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