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Relations Among the Home Language and Literacy Environment and Children's Language Abilities: A Study of Head Start Dual Language Learners and Their Mothers

Kandia Lewis^a, Lia E. Sandilos^a, Carol Scheffner Hammer^a, Brook E. Sawyer^b, and Lucía I. Méndez^c

^aCommunication Sciences and Disorders, Temple University

^bEducation and Human Services, Lehigh University

^cCommunication Sciences and Disorders, East Carolina University

Abstract

Research Findings—This study explored the relations between Spanish–English dual language learner (DLL) children's home language and literacy experiences and their expressive vocabulary and oral comprehension abilities in Spanish and in English. Data from Spanish–English mothers of 93 preschool-age Head Start children who resided in central Pennsylvania were analyzed. Children completed the Picture Vocabulary and Oral Comprehension subtests of the Bateria III Woodcock–Muñoz and the Woodcock–Johnson III Tests of Achievement. Results revealed that the language spoken by mothers and children and the frequency of mother–child reading at home influenced children's Spanish language abilities. In addition, the frequency with which children told a story was positively related to children's performance on English oral language measures.

Practice or Policy—The findings suggest that language and literacy experiences at home have a differential impact on DLLs' language abilities in their 2 languages. Specific components of the home environment that benefit and support DLL children's language abilities are discussed.

Over the past decade, dual language learners (DLLs) have been the fastest growing student population in U.S. schools (National Center for Education Statistics, 2004, 2010). In early childhood education, the enrollment of DLLs is also striking. Currently, DLLs make up approximately 30% of Head Start students, with 80% of those children coming from Spanish-speaking homes (Mathematica Policy Research Institute, 2010). Spanish–English DLLs are a heterogeneous group of children whose varied experiences with their two languages impact their abilities in those languages. Some of these children learn two languages from birth, others may be exposed to English before school, and still others may not be exposed to English until they enter school. These differences in language exposure contribute to the wide variations in the Spanish and English language abilities found within

CONTACT Kandia Lewis kandia.lewis@nemours.org Nemours BrightStart, 2200 Concord Pike, 8th Floor, Room RL8-446, Wilmington, DE 19803.

Kandia Lewis is now affiliated with Nemours BrightStart!. Lia E. Sandilos is now affiliated with the Center for Advanced Study of Teaching and Learning, University of Virginia. Carol Scheffner Hammer is now affiliated with Teachers College, Columbia University.

this population (Sánchez, 2006). As DLLs progress through school, they are typically exposed to an increased amount of English. This in turn may result in a decreased exposure to and use of their home language (Pease-Alvarez & Winsler, 1994; Portes & Rumbaut, 2001; Tse, 2001; Wong-Fillmore, 1991). This is particularly important given the relation between DLLs' early language experiences and their educational performance.

DLLs' vocabulary and oral comprehension abilities in Spanish and in English are critical to their later reading and academic success (August & Shanahan, 2006; Davison, Hammer, & Lawrence, 2011; Dickinson, McCabe, Clark-Chiarelli, & Wolf, 2004; Hammer, Lawrence, & Miccio, 2007). For instance, it was found that Spanish–English DLL preschoolers' vocabulary and oral comprehension development predicted their reading abilities in both their languages at the end of kindergarten and first grade (Davison et al, 2011; Hammer et al., 2007). However, research has shown that DLL preschoolers' language abilities, including their vocabulary, lag behind their same-age monolingual peers' in Spanish and English (Aikens, Kopack Klein, Tarullo, & West, 2013; Pérez, Tabors, & López, 2007). Therefore, to better support DLLs' academic success, it is vital to understand what promotes their language abilities in Spanish and in English.

Although research on factors that might impact DLL children's language development is limited (Center for Early Care and Education Research—Dual Language Learners, 2011), the home environment has been identified as a potential contributor. Several elements within the home can intimately and positively shape DLL children's language abilities (Bronfenbrenner & Morris, 2006). Two specific home components that may support DLLs' vocabulary and oral comprehension abilities are their language experiences (i.e., the amount of exposure to and use of either language; Bedore et al., 2012) and their literacy experiences (i.e., literacy activities and literacy materials; Bohman, Bedore, Peña, Mendez-Perez, & Gillam, 2010; Snow, Burns, & Griffin, 1998). The amount of exposure to and use of languages provides an overall indicator of DLLs' language experiences at home, whereas literacy activities and materials provide information about the specific literacy characteristics of the home.

It is essential to understand how overall language experiences and specific literacy experiences in the home may support DLLs' vocabulary and oral comprehension abilities in both languages. One study demonstrated that home language and literacy experiences supported DLLs' vocabulary abilities in Spanish and English (Quiroz, Snow, & Zhao, 2010). Specifically, activities that occurred in Spanish were positively related to DLLs' Spanish vocabulary but negatively related to DLLs' English vocabulary, and the reverse was also true (Quiroz et al, 2010). This study expands on previous research by (a) examining how specific literacy experiences (i.e., literacy activities and materials) may support DLLs' language abilities beyond the contribution of overall language experiences (i.e., the amount of language exposure and usage) at home and (b) investigating how home language and literacy experiences impact DLLs' vocabulary *and* oral comprehension abilities in Spanish and in English. When investigating these factors the focus is on maternal language and literacy experiences, because mothers are typically the primary caregivers in Hispanic homes (Evercare and National Alliance for Caregiving, 2009), and as such Hispanic mothers are primarily responsible for passing on the language and literacy traditions of a family to their

children (González, 2005; Veltman, 1981; Zentella, 1997). In addition, Hispanic mothers have been found to read to their children more frequently than other family members (Hammer, Rodriguez, Lawrence, & Miccio, 2007). Furthermore, in the broader literature maternal home literacy practices have been found to promote monolingual children's language development (DeBaryshe, 1993; Deckner, Adamson, & Bakeman, 2006; Dickinson & DeTemple, 1998; Schick & Melzi, 2010).

Home language experiences

Children's language experiences at home play a pivotal role in their early language abilities regardless of the language spoken (Arriagada, 2005; Huennekens & Xu, 2010). These experiences are composed of the speech children hear (i.e., language exposure) and the language children produce (i.e., language usage) in the home (Hoff, 2006, 2010). To understand the impact of home language experiences on DLLs' language abilities, it is necessary to explore the varied amount of exposure to and use of these languages in the home (Bedore et al., 2012). Understanding the composition of language exposure and use for these children will provide a more complete description of their home language environment.

Significant to DLLs' language abilities is the impact that exposure to Spanish has on both Spanish and English language abilities. Specifically, studies of DLL toddlers and preschoolers showed that the amount of exposure to Spanish at home influenced children's Spanish vocabulary, grammar, and early literacy abilities (Hammer, Davison, Lawrence, & Miccio, 2009; Hoff et al, 2012). This influence persists into the school years (Duursma Romero-Contreras, Szuber, Proctor, & Snow, 2007) without detriment to the development of DLLs' English language abilities (Hammer et al., 2009).

It is also necessary to understand the impact that exposure to English in the home has on DLLs' Spanish and English language abilities. It was found that an increased exposure to English slowed toddler DLLs' vocabulary development in Spanish (Hoff et al., 2012). The findings are mixed, however, when it comes to the influence that English exposure has on DLLs' English language abilities. Hoff and colleagues (2012) reported that the amount of exposure to English at home supported DLL toddlers' English language abilities. In contrast, Hammer and colleagues (2009) found that increased exposure to English in the home did not impact children's rate of *growth* of English. Given that research on English language exposure is mixed, continued research is warranted. Moreover, it is important to understand how children's home language use might promote vocabulary and oral comprehension abilities.

In addition to hearing language, DLL children also need to use language to develop their language abilities (Bohman et al., 2010; Gutiérrez-Clellen & Kreiter, 2003). DLL children's use of language may be particularly important for supporting their acquisition of vocabulary. Hammer and colleagues (2012) showed that both children's exposure to and use of English were related to children's vocabulary growth in their two languages. However, limited empirical evidence further examines the role of language use in promoting vocabulary or oral comprehension abilities in DLLs. When considering the language experiences of DLL

children, both language exposure and use should be explored to better understand the language abilities of DLLs.

Home literacy experiences

Furthermore, it is necessary to explore activities in the home, in which language and literacy experiences may occur. These activities may further impact DLLs' vocabulary and oral comprehension abilities. Literacy experiences in the home have been shown to support monolingual children's language abilities (Burgess, Hecht, & Lonigan, 2002; Bus, van Ijzendoorn, & Pellegrini, 1995; Johnson, Martin, Brooks-Gunn, & Petrill, 2008; Leseman & De Jong, 1998; Schick & Melzi, 2010; Sénéchal & LeFevre, 2002). Several researchers have contributed valuable descriptive information about the home environment of DLLs (Arzubiaga, Rueda, & Monzó, 2002; Delgado-Gaitan, 1992, 1994; Monzó & Rueda, 2001; Valdés, 1996). However, relatively few studies have focused on the potentially supportive influence home literacy experiences have on DLL children's language abilities. Manz, Hughes, Barnabas, Bracaliello, and Ginsburg-Block's (2010) meta-analysis of home language and literacy intervention studies revealed that only 6% of the studies included DLLs. The relatively few studies that have examined the influence of the home literacy environment on DLLs abilities demonstrate that maternal practices support children's language abilities (Farver, Xu, Eppe, & Lonigan, 2006; Farver, Xu, Lonigan, & Eppe, 2013). There are several ways in which mothers influence children's language abilities, such as through mother-child literacy activities, maternal literacy activities, and the availability of literacy materials.

Mother-child literacy activities

Literacy activities support children's vocabulary and oral comprehension abilities (Farver et al., 2006; Haney & Hill, 2004; Méndez, Crais, Castro, & Kainz, 2015; Sénéchal & LeFevre, 2002). Three of these potentially supportive mother-child literacy activities include (a) frequency of book reading, (b) frequency of child storytelling, and (c) frequency of home literacy-related teaching activities (e.g., teaching colors, shapes, the alphabet, letter-sound correspondence, numbers, and writing).

There is a consensus in the literature that reading books at home supports vocabulary and oral comprehension development in young children. During book reading, mothers may expose their children to a variety of words and may ask their children questions, which provide children with the opportunity to learn new words and talk about new concepts (Hoff, 2006). In particular, book reading at home is related to increases in vocabulary and oral comprehension ability in monolingual children (Bus et al., 1995; Sénéchal & LeFevre, 2002; Sénéchal, LeFevre, Thomas, & Daley, 1998; Whitehurst et al., 1994) and DLL children (Collins, 2005; Farver et al., 2006; Jiménez, Filippini, & Gerber, 2006; Reese, Garnier, Gallimore, & Goldenberg, 2000; Roberts, 2008). For example, Farver and colleagues (2006) found that the frequency of book reading at home was positively related to DLL children's receptive vocabulary abilities in their most fluent language.

Another important mother-child literacy activity is child storytelling. Studies show that the quality of child storytelling supports children's language abilities (Miller et al., 2006; Schick

& Melzi, 2010; Uccelli & Páez, 2007). Child storytelling at home may build children's vocabulary and oral comprehension abilities because children are required to combine words into sentences and express a coherent story to aid their listeners (Peterson, Jesso, & McCabe, 1999). In addition, storytelling may be beneficial because using language may help children understand and internalize language, which might not otherwise be accomplished by only hearing it (Bohman et al., 2010). Therefore, more frequent opportunities to tell stories at home may support children's vocabulary and oral comprehension abilities. The studies about child storytelling have focused on quality; however, no known studies have examined the relation between the frequency with which children tell stories at home and children's vocabulary and oral comprehension abilities. This study addresses this gap in the literature.

Furthermore, teaching literacy and language-related skills at home (e.g., teaching colors, shapes, and the alphabet) may bolster children's vocabulary and oral comprehension abilities. Language and literacy-related teaching activities provide children with a structured time in which they might further build and develop their language and literacy abilities (Frijters, Barron, & Brunello, 2000; Sénéchal et al., 1998); however, the research findings on monolinguals are mixed. One study demonstrated a positive relation between parents' direct teaching of literacy skills and their preschool monolingual children's vocabulary abilities (Haney & Hill, 2004). However, other research has not found strong or direct associations between home literacy teaching activities and monolingual children's language abilities, specifically vocabulary and oral comprehension abilities (Evans, Shaw, & Bell, 2000; Foy & Mann, 2003; Sénéchal & LeFevre, 2002). These findings are similar to the limited available research with DLLs. For example, Hammer, Miccio, and Wagstaff (2003) did not find a relation between maternal teaching activities and DLL children's English literacy abilities. Continued investigation is warranted to better understand the specific components of home literacy experiences that lend support to children's language abilities, particularly because relatively few studies have been conducted with preschool DLLs.

Maternal literacy activities

Mothers' own literacy activities are related to their monolingual children's language abilities (Burgess et al., 2002). These behaviors include reading books, newspapers, magazines, sales ads, or the Bible; checking out a book from the library; using a dictionary, an encyclopedia, or recipes; and sending cards or letters (i.e., Hammer et al., 2003). Mothers' literacy activities might help to provide children with a model of positive literacy usage (Burgess et al., 2002). Empirical evidence from Burgess and colleagues (2002) documented that middle-income parents' literacy practices promoted their monolingual children's expressive language abilities. However, similar findings for DLL families have not been found, although the empirical evidence with this population is limited (Gonzalez & Uhing, 2008; Hammer et al., 2003). For instance, Gonzalez and Uhing (2008) did not find a strong relation between parents' literacy behaviors and their DLL children's expressive and receptive language development in Spanish and English.

Availability of literacy materials

The availability of literacy materials in the home may indicate that children have opportunities to participate in literacy and language-related activities. The availability of

these literacy materials may engage children in language-enriched activities that promote their expressive and receptive language abilities (Burgess, 2005; Frijters et al., 2000). Moreover, language-supportive activities, such as book reading, are more likely to occur in homes that contain children's books (Hess & Holloway, 1984). Researchers have found a relation between the amount of literacy materials, such as the number of children's books, and monolingual children's receptive and expressive vocabulary abilities (Christian, Morrison, & Bryant, 1998; Johnson et al., 2008; Payne, Whitehurst, & Angell, 1994). However, the research on DLL children is mixed. Similar to the research on monolingual children, Farver et al. (2013) found that the presence of English literacy-related materials in the home was positively related to DLL preschool children's receptive and expressive language abilities in English. However, this finding was not observed when researchers examined the relation between Spanish literacy materials and DLL children's Spanish language outcomes.

Purpose of the study

The purpose of this study was to examine the influence that DLLs' overall language experiences and their specific literacy experiences at home have on their vocabulary and oral comprehension abilities in Spanish and in English. The home environment promotes DLLs' language abilities, and these abilities are critical to DLLs' academic success (Davison et al., 2011; Dickinson et al., 2004; Hammer et al., 2007). This study is needed for two reasons. First, this investigation extends previous research by considering the influence of overall language experiences *and* specific literacy experiences on preschool DLLs' vocabulary *and* oral comprehension in Spanish and English. It is important to understand how specific home literacy experiences (mother-child literacy activities, maternal literacy activities, and the availability of literacy materials) may add further support, beyond the amount of overall language experiences (language exposure and language use) in the home, to DLLs' vocabulary and oral comprehension abilities in both languages. Second, this is the only study, to our knowledge, that examines the relation between the frequency with which children tell stories at home and children's language abilities. If frequency of storytelling promotes language, then this may have important implications for bolstering DLLs' language abilities.

It was hypothesized that children's amount of exposure to and use of Spanish and English at home would promote their expressive vocabulary and oral comprehension abilities in the more frequent language (Hammer et al., 2012). In addition, given previous research demonstrating that the home literacy experiences of DLLs promote their language abilities, it was hypothesized that these experiences would support their expressive vocabulary and oral comprehension abilities (Farver et al., 2006).

Method

Participants

A total of 93 DLL children and their mothers were recruited from urban Head Start classrooms in central Pennsylvania. DLLs were defined as children who had been exposed to Spanish from birth, had first been exposed to English either at home or in school, and had

a continuum of language abilities in Spanish and in English. To be included in the study, children had to be considered DLLs, and their families had to qualify for Head Start financially (i.e., have low income). No children included in the study had parent or teacher concerns about their development, and all children were eligible to attend kindergarten in the following school year.

Children ranged in age from 43 months to 66 months, with a mean age of 55.83 months ($SD = 4.35$ months). They were evenly divided by gender (50% boys, 50% girls). More than three quarters (80%) of children were born in the U.S. mainland, 18% were born in Puerto Rico, and 2% were born in the Dominican Republic. The majority (55%) of children attended at least 2 years of Head Start, and school instruction occurred in English.

Mothers averaged 28.65 years of age ($SD = 5.90$ years). They averaged 11.20 years of formal education, with a standard deviation of 1.91 years. Less than half (44%) of mothers were born in the U.S. mainland. Slightly more than a quarter of mothers were the first generation to move to the U.S. mainland (28%). The majority of mothers were of Puerto Rican descent (79%). The remaining mothers were Dominican (9%), Mexican (5%), Cuban (5%), and Ecuadorian or Honduran (3%).

All children were exposed to Spanish in the home before entering school, but the majority of children (89%) were also exposed to English in the home before beginning Head Start. Consistent with this heterogeneous population, mothers reported a range of language experiences in the home. More than a third of mothers reported that they used more or all Spanish at home, a little under a quarter of mothers described a mix of Spanish and English used, and a small proportion of mothers reported that they only spoke English at home (see Table 1). Mothers who only used English with their children reported that another person in the home, such as a grandmother or a father, spoke more Spanish than English to their children.

Procedures and measures

Data were collected on children's Spanish and English language abilities through direct assessments conducted at their Head Start centers in the fall. Spanish and English assessments occurred in separate sessions 2 weeks apart. The Spanish subtests were administered by trained bilingual data collectors who tested the children in a quiet location.

Children's Spanish and English language abilities were assessed using the Picture Vocabulary and Oral Comprehension subtests of the Bateria III Woodcock–Muñoz (in Spanish; Muñoz-Sandoval, Woodcock, McGrew, & Mather, 2005) and the Woodcock–Johnson III Tests of Achievement (in English; Woodcock, McGrew, & Mather, 2001). Spanish Picture Vocabulary has a total of 46 items, and English Picture Vocabulary has a total of 44 items. There are three receptive items on the Spanish subtest and one receptive item on the English subtest. The remaining items on the Spanish and English subtests are expressive. The Spanish Picture Vocabulary subtest has a reliability coefficient of .76, and the English Picture Vocabulary subtest has a reliability coefficient of .84 (Muñoz-Sandoval et al, 2005; Woodcock et al., 2001).

The Spanish and English Oral Comprehension subtests each have a total of 21 items. During the Oral Comprehension subtest, the child is asked to give antonyms or synonyms to spoken words and to complete oral analogies (e.g., “elephant is to big as mouse is to ____”). The Spanish Oral Comprehension subtest has a reliability coefficient of .85, and the English Oral Comprehension subtest has a reliability coefficient of .90 (Muñoz-Sandoval et al, 2005; Woodcock et al., 2001).

Information on children's language exposure and usage and home literacy activities and materials was gathered through the Home Activities Questionnaire (Hammer et al., 2003). The questionnaire was administered by trained bilingual home visitors in the language of mothers' choosing at the mothers' homes in the fall. The questionnaire was read to mothers to account for differing levels of literacy abilities. Mothers reported on their home language and literacy practices with their children.

The Home Activities Questionnaire elicits information about home language and literacy practices. Mothers reported on the language(s) used when speaking to their children and the language(s) used when their children spoke to them. These items included “Language you speak to your child” and “Language your child speaks to you.” Mothers responded based on a 5-point scale (1 = all English, 2 = more English than Spanish, 3 = same amount of Spanish and English, 4 = more Spanish than English, and 5 = all Spanish).

In addition, mothers reported the frequency with which they engaged in 24 specific literacy activities in the home (i.e., Hammer et al., 2003). Home literacy practices included (a) one item on the frequency of mother–child book reading (read a book to your child), (b) one item on the frequency of child storytelling (child tells a story), (c) nine items on maternal teaching (teach child colors, shapes, the alphabet, letter sounds, to count, numbers, and writing; color with child; and take child to the library), and (d) 13 items on the reading and writing practices of mothers (read a book, newspaper, magazine, sales ads, church newsletter, and the Bible; use a dictionary, an encyclopedia, and recipes; make a grocery list; send a card or letter; pay a bill; and check out a book from the library). Mothers reported the frequency of home literacy practices on a 7-point scale (1 = rarely or never, 2 = several times a year, 3 = 1 time a month, 4 = 2–3 times a month, 5 = 1 day a week, 6 = 2–4 days a week, and 7 = 5–7 days a week). Mothers also reported the total number of children's books in the home on a 9-point scale (1 = 0, 2 = 1–5, 3 = 6–10, 4 = 11–20, 5 = 21–30, 6 = 31–40, 7 = 41–50, 8 = 51–100, and 9 = more than 100).

Data analysis

Two composite predictors were developed from items on the Home Activities Questionnaire. Specifically, frequency of maternal teaching and frequency of maternal literacy activities were created based on previous research exploring these home literacy constructs (i.e., Hammer et al., 2003). The frequency of the maternal teaching composite was developed by calculating an average for the following nine items: teaching colors, shapes, the alphabet, letter sounds, to count, numbers, and writing; coloring with children; and taking children to the library. The frequency of the maternal literacy activities composite was developed by calculating an average for the following 13 items: reading books, newspapers, magazines, sales ads, church newsletters, and the Bible; checking out a book from the library; using a

dictionary, an encyclopedia, and recipes; making a grocery list; paying bills; and sending cards or letters. Cronbach's alphas for the frequency of maternal teaching and the frequency of maternal literacy activities were .80 and .66, respectively.

Regression analyses were conducted using SPSS Version 22.0 (IBM, 2014). Separate hierarchical multiple regression analyses were conducted for each outcome variable (i.e., Spanish Picture Vocabulary, Spanish Oral Comprehension, English Picture Vocabulary, English Oral Comprehension) to examine whether home language and literacy variables positively predicted scores on each outcome. Standard scores for the Picture Vocabulary and Oral Comprehension subtests in Spanish and English were used in the analysis. A hierarchical (blockwise) entry was used to enter predictors into each model. In each model, the outcome measure was regressed on the covariates and predictor variables of interest. For all of the models, maternal education was entered as a covariate in the first block because research has shown that low maternal education puts DLL children at risk for poor language outcomes (Altschul, 2012; Bohman et al., 2010; Roscigno, 2000). In the second block, the exposure (maternal language) and usage (child language) variables were entered as predictors. The third block consisted of mother–child literacy activities (i.e., frequency of mother–child book reading, frequency of child storytelling, frequency of maternal teaching), maternal literacy activities (i.e., frequency of maternal literacy activities), and availability of literacy materials (i.e., number of children's books in the home). The second and third blocks were ordered in this way to investigate whether the specific literacy experiences contributed, beyond the amount of overall language experiences, to DLLs' vocabulary and oral comprehension abilities.

Results

Descriptive statistics for language exposure and usage, as was discussed in the previous section, are reported in Table 1. The home literacy environment predictors are provided in Table 2. On average, mother–child literacy activities occurred two to four times per week, and maternal literacy activities occurred on average one time per month. There were typically six to 10 children's books in the home. Means, standard deviations, and ranges for child outcome measures are provided in Table 3. Average standard scores across the language assessments ranged widely. Standard score means were as follows: Spanish Picture Vocabulary was 48.06, Spanish Oral Comprehension was 74.35, English Picture Vocabulary was 87.96, and English Oral Comprehension was 90.32. Among predictor and outcome variables, there were small to large Pearson correlation coefficients (r) ranging from $-.045$ to $.703$ (Table 4).

Spanish language outcomes

For Spanish Picture Vocabulary, the full model explained 60% of the variance ($R^2 = .60$, $F[8, 62] = 10.11$, $p < .01$; see Table 5). After we controlled for maternal education, language experiences (i.e., language exposure and child language usage) accounted for 53% of the variance. Both maternal language and child language were unique predictors ($p < .01$) of Spanish Picture Vocabulary, indicating that increased exposure to and usage of Spanish in the home positively predicted children's Spanish vocabulary skills. In other words, the more

Spanish children heard from their mothers, and the more children spoke in Spanish, the higher their scores were on Spanish Picture Vocabulary. Home literacy experiences (i.e., mother–child literacy activities, maternal literacy activities, and availability of literacy materials) accounted for an additional 7% of the variance. Within mother–child literacy activities, frequency of mother–child book reading was a unique and positive predictor ($p < .05$) of Spanish Picture Vocabulary. This indicates that the more frequently mothers read books to their children, the higher children scored on Spanish Picture Vocabulary.

The full model explained 44% of the variance in Spanish Oral Comprehension scores ($R^2 = .44$, $F[8, 62] = 5.32$, $p < .01$; see Table 6). After we controlled for maternal education, language experiences explained an additional 36% of the variance in the model, with maternal language (i.e., mother's use of Spanish) being a unique and positive predictor ($p < .01$). This indicates that children's Spanish oral comprehension abilities were higher when they were exposed to more amounts of Spanish at home. Home literacy experiences contributed 8% additional variance, and mother–child book reading was found to positively predict Spanish Oral Comprehension ($p < .05$). Thus, children who were read to more frequently at home achieved higher scores on Spanish Oral Comprehension.

English language outcomes

For English Picture Vocabulary, the full model explained 24% of the variance ($R^2 = .24$, $F[8, 62] = 2.17$, $p < .05$; see Table 7). After we accounted for maternal education, language experiences explained 19% of the variance in English Picture Vocabulary. However, language experience variables (i.e., language exposure and child language usage) were not unique predictors of English Picture Vocabulary. Home literacy experiences explained an additional 5% of the variance, but these variables were not unique predictors of English Picture Vocabulary. It should be noted that prior to home literacy experiences being introduced into the model, children's usage of language was uniquely predictive of English Picture Vocabulary.

The full model for English Oral Comprehension was not significant ($R^2 = .18$, $F[8, 62] = 1.45$, $p = .20$; see Table 8). Although the model was not significant, the frequency of child storytelling was found to be uniquely and positively predictive ($p = .05$) of English Oral Comprehension. That is, the more frequently children told stories, the higher their scores were on English Oral Comprehension.

Discussion

This study extends previous research by considering the impact of overall language experiences *and* specific literacy experiences on preschool DLLs' vocabulary *and* oral comprehension in Spanish and English. It is necessary to understand how the home environment may influence DLLs' vocabulary and oral comprehension abilities in both languages because these language abilities are critical to DLLs' academic success (Davison et al., 2011; Dickinson et al., 2004; Hammer et al., 2007). It was hypothesized that the home language and home literacy experiences of DLLs would promote their language abilities in Spanish and in English. Overall, these hypotheses were supported. DLLs' language experiences and home literacy experiences had differential impacts on their vocabulary and

oral comprehension abilities in Spanish and English. Specifically, DLL preschoolers' Spanish vocabulary and oral comprehension were supported by exposure to and use of Spanish at home, whereas DLLs' English oral comprehension was supported primarily by children's English language use. Furthermore, mother–child book reading supported DLLs' Spanish vocabulary and oral comprehension abilities, and child storytelling supported English oral comprehension abilities. These findings suggest that the language(s) in which home language and literacy experiences occur differentially influence DLL preschoolers' vocabulary and oral comprehension abilities in the two languages. The findings of this study show that, in part, because of varied language and literacy experiences in the home DLL preschoolers are a heterogeneous population with diverse language abilities.

Spanish language abilities

This study found that DLL preschoolers' Spanish vocabulary and oral comprehension abilities are influenced by overall language experiences and specific literacy experiences at home. In particular, home language and literacy experiences explained 60% of the variance in Spanish expressive vocabulary abilities and 44% of the variance in Spanish oral comprehension.

Home language experiences—As hypothesized, exposure to and use of Spanish at home supported DLL preschoolers' Spanish expressive vocabulary abilities. This is consistent with research that shows that children need to be exposed to their home language in order to develop vocabulary abilities in that language (De Houwer, 2007; Hammer et al., 2009; Quiroz et al., 2010; Reese & Goldenberg, 2008; Willard, Agache, Jäkel, Glück, & Leyendecker, 2015). The findings also revealed that the amount of Spanish children used at home supported their Spanish expressive vocabulary abilities, indicating that children's usage of their home language is critical for vocabulary development in the same language (Bohman et al., 2010; Gutiérrez-Clellen & Kreiter, 2003; Hammer et al., 2012).

In addition to supporting vocabulary abilities, this study shows that exposure to Spanish also promotes DLLs' Spanish oral comprehension abilities. However, in contrast to our hypothesis, children's use of Spanish (i.e., child language use) was not a unique significant predictor of Spanish oral comprehension abilities. This differential finding makes sense given that some DLL children have receptive abilities in one of their languages and both receptive and expressive abilities in the other language. The term *receptive bilingual* means that a child comprehends both languages but only speaks in one language (Döpke, 1992). Many of the children in this sample appeared to be receptive bilinguals because they had average expressive and receptive abilities in English but low expressive abilities in Spanish. In order to have strong expressive vocabulary abilities children need to use language (Bohman et al., 2010), and research supports that it is necessary for DLLs to hear and understand spoken language in order to comprehend oral language (Mordaunt & Olson, 2010).

Home literacy experiences—Overall, home literacy experiences are related to DLLs' Spanish vocabulary and oral comprehension abilities. Specifically, the frequency of mother–child book reading made a unique contribution to DLLs' Spanish language abilities. This

finding is consistent with research on monolingual preschoolers (Bus et al., 1995; Whitehurst et al., 1994). The frequency of book reading seems to support vocabulary development for both DLL and monolingual children (Farver et al., 2006; Jiménez et al., 2006; Reese et al., 2000; Sénéchal & LeFevre, 2002; Whitehurst et al., 1994). This suggests that parents who read with their children use and expose their children to a variety of words, which may provide children with the opportunity to learn new words (Hoff, 2006). Moreover, book reading also supported DLLs' Spanish oral comprehension. Although book reading was related to DLLs' vocabulary and oral comprehension abilities, on average, mothers and children did not engage in home literacy activities frequently, and there were few literacy materials in the home. This might help explain why the other specific home literacy experiences did not contribute to DLLs' Spanish language abilities. However, this study highlights that, in addition to language exposure and use, book reading is another important component of the home environment.

English language abilities

Overall, language and literacy experiences in the home were related to DLL preschoolers' English vocabulary and oral comprehension abilities. In particular, language and literacy experiences explained 24% of the variance in English expressive vocabulary abilities, and English oral comprehension abilities were uniquely influenced by the specific literacy experiences at home.

Home language experiences—Children's English language usage was uniquely predictive of English vocabulary abilities prior to home literacy experiences being introduced into the model. In the full model, language experiences at home continued to explain a sizeable portion of the variance (19%), though language experiences were no longer uniquely predictive of DLLs' vocabulary or oral comprehension abilities. Overall, the results show that language experiences are related to DLLs' vocabulary abilities. This is consistent with research that demonstrates that children's usage of language is important for the development of language abilities, including vocabulary, in that same language (Bohman et al., 2010; Hammer et al., 2012; Quiroz et al., 2010). For instance, Quiroz and colleagues (2010) found that the amount of English that preschool DLLs used at home was positively associated with English vocabulary abilities. Consistent with previous research, exposure to English at home did not impact children's English vocabulary or oral comprehension abilities (Hammer et al., 2009). Given that more than half of the mothers used Spanish at home, and previous research indicates that native English speakers support children's English language abilities more than nonnative English speakers (Place & Hoff, 2011), this finding suggests that DLLs' exposure to English at home does not provide additional support beyond the English language experiences DLLs receive in school.

Home literacy experiences

Overall literacy experiences played a small role in DLLs' vocabulary; however, no particular activity made a unique contribution to vocabulary ability. Notably, the frequency of child storytelling, an activity in which children produced a narrative, contributed to DLLs' English oral comprehension abilities. Similar to previous findings with monolingual children, the results of this study reveal that child storytelling builds DLL children's comprehension

abilities because it promotes language use and children need to combine words into sentences and express a coherent story (Miller et al., 2006; Peterson et al., 1999). The findings reinforce the notion that child storytelling is a useful activity for children learning two languages, as this activity may facilitate children's use of language in a manner that might not otherwise be accomplished by only hearing stories (Bohman et al., 2010). Although mothers did not report on the language in which children told stories, as part of the larger study, children's narrative abilities were directly assessed. These data indicate that the majority of DLLs spoke more English than Spanish with their mothers (60%), and most children produced narratives in English (67%). This suggests that providing children with more frequent opportunities to use decontextualized language, such as telling stories at home, may promote oral comprehension abilities in the language of production. This is consistent with previous research that demonstrates that children's language usage at home supports language abilities in the same language (Bohman et al., 2010; Hammer et al., 2012; Quiroz et al., 2010).

Limitations and directions for future research

There are three limitations of this study and several areas for future direction based on the findings. First, we did not collect data on the language(s) spoken during specific home literacy activities or the number of literacy materials in Spanish and English. Thus, we were not able to analyze the impact of the language(s) used during these activities on children's language abilities. Items about language(s) spoken during specific home literacy activities were not included in the questionnaire in order to decrease the response burden on mothers. A follow-up study should investigate the association between the frequency of home literacy experiences and the language in which those experiences occur. This information could provide additional insight into the relation between patterns of language use during home literacy activities and differences in children's performance in their two languages. It is important to note that even without this information, the overall language experiences and the specific literacy experiences measured in this study explained a sizeable proportion of the variance, especially for the Spanish language outcomes (44%–60% of the variance). This suggests that the home language and literacy experiences explored in the study are strongly associated with children's language abilities.

Second, the impact that communicative partners other than children's mothers had on children's language abilities was not explored. Children's communicative partners other than their mothers impact their language abilities (Hammer et al., 2012; Place & Hoff, 2011). Thus, a future study should explore the influence that children's language experiences with other family members have on their language abilities. Even though these additional communicative partners were not explored in this study, results show that mothers' language exposure alone had a large influence on children's language abilities.

Third, the preschoolers in this study were DLLs exhibiting more developed language abilities in English than in Spanish. It is likely that many children in our sample of DLLs spent a proportionately larger part of their overall daily interactions and instruction in English than in Spanish. Thus, the interpretations of the study findings are limited to groups of DLLs that may share similar characteristics. However, given the heterogeneity in

language levels found in DLLs, the results of this study contribute to our understanding of DLLs who display greater language skills in English than in Spanish. Future studies should investigate DLLs with stronger Spanish abilities and DLLs with more balanced abilities in both languages to gain a broader understanding of this heterogeneous group of children.

Future research should also examine children's school language experiences because language exposure at school impacts DLLs' language abilities (Hammer et al., 2012). In addition, DLLs in this study were all instructed in English at school. Previous research has shown that DLLs' language abilities are impacted by whether the language of instruction in school is Spanish or English (Duursma et al., 2007). A future study should explore the impact of the home language and literacy experiences of DLLs who are instructed in Spanish and/or DLLs who are instructed in a dual language program.

Interestingly, maternal education was not related to DLLs' vocabulary and oral comprehension abilities. This could be because of the limited variability of maternal education in this sample. The average maternal educational attainment was 11.2 years of school, with almost half of mothers not receiving a high school diploma (49%). Targeting a more educationally diverse sample may provide a broader understanding of this relation and its influence on DLLs' language abilities.

Conclusions

This study suggests that DLLs need to be exposed to and use Spanish at home in order to maintain their Spanish language abilities. Exposure to and use of Spanish at home is particularly critical, as was the case for the DLLs in this study, if school instruction occurs mainly in English (Duursma et al., 2007). Spanish language experiences at home are important because the maintenance and support of DLLs' Spanish language abilities can also promote the development of English language abilities, cognitive abilities, and overall academic performance (Cummins, 2005; Davison et al., 2011; Quiroga, Lemos-Britton, Mostafapour, Abbott, & Berninger, 2002). Furthermore, consistent with previous research, exposure to more Spanish than English at home did not negatively impact DLLs' English abilities (Hammer et al., 2009).

It is noteworthy that the findings revealed that even limited engagement in literacy activities and limited literacy materials supported DLLs' vocabulary and oral comprehension abilities. On average, mothers and children engaged in literacy activities two to four times a week, and there were an average of six to 10 children's books in the home. Given the busy lives of parents, many parents may be encouraged to find that regular, but not necessarily daily, literacy activities support children's language development.

This study reveals several important practical implications for mothers of DLLs. First, mothers should promote their children's exposure to and use of Spanish, because hearing and speaking Spanish supports DLLs' language abilities. Specifically, exposure to Spanish supports DLLs' Spanish vocabulary and oral comprehension abilities, and children's use of Spanish supports their vocabulary abilities. Second, mothers are encouraged to read books to their children, as this promotes DLLs' Spanish vocabulary and oral comprehension. Third, it

is recommended that mothers provide their children with the opportunity to engage in storytelling, because telling stories may improve DLLs' English oral comprehension abilities. These implications are particularly important given that vocabulary and oral comprehension abilities are critical for DLLs' later reading and academic success. Overall, this study shows that the literacy experiences related to monolingual children's language abilities are also relevant for diverse language home environments and that they have a differential impact on DLLs' language abilities in their two languages.

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Table 1

Language exposure and usage.

Amount of language	% Mother of child	% Child of mother
All Spanish	32.0	16.0
More Spanish	12.0	14.7
Equal Spanish and English	22.7	9.3
More English	26.7	29.3
All English	6.6	30.7

Table 2

Home literacy environment descriptive statistics.

Home literacy activity	Range	<i>M</i>	<i>SD</i>
Frequency of mother–child book reading	1–7	5.82	1.65
Frequency of child storytelling	1–7	5.93	1.60
Frequency of maternal teaching	1.63–7.00	5.73	1.06
Frequency of maternal literacy activities	1.23–5.15	3.21	0.88
Number of children's books in the home	0–8	3.06	1.77

Note. Frequency variables are coded on a 7-point scale (1 = rarely or never, 2 = several times a year, 3 = 1 time a month, 4 = 2–3 times a month, 5 = 1 day a week, 6 = 2–4 days a week, and 7 = 5–7 days a week). Number of children's books is coded on a 9-point scale (1 = 0, 2 = 1–5, 3 = 6–10, 4 = 11–20, 5 = 21–30, 6 = 31–40, 7 = 41–50, 8 = 51–100, and 9 = more than 100).

Table 3

Batería III Woodcock–Muñoz and Woodcock–Johnson III tests of achievement standard scores.

Assessment	<i>n</i>	Range	<i>M</i>	<i>SD</i>
Spanish Picture Vocabulary	93	12–88	48.06	19.86
Spanish Oral Comprehension	93	56–117	74.35	15.67
English Picture Vocabulary	93	33–113	87.96	17.94
English Oral Comprehension	93	70–120	90.32	10.89

Table 4

Correlations between home environment predictors and language outcomes.

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Spanish Picture Vocabulary	—	.795**	-.423**	-.201	.703**	.703**	.001	-.252*	-.241*	-.087	-.045
2. Spanish Oral Comprehension		—	-.217*	.038	.557*	.556*	.050	-.143	-.180	-.060	.060
3. English Picture Vocabulary			—	.697**	-.353**	-.442*	.126	.303*	.205	.085	.191
4. English Oral Comprehension				—	-.228*	-.273*	.122	.255*	.136	.115	.264*
5. Maternal language					—	.778**	-.347*	-.194	-.238*	-.151	-.168
6. Child language						—	-.215	-.241*	-.129	-.054	-.094
7. Frequency of mother-child book reading							—	.155	.255*	.352*	.265*
8. Frequency of child storytelling								—	.319*	.277*	.250*
9. Frequency of maternal teaching									—	.281*	.311*
10. Frequency of maternal literacy activities										—	.560**
11. Number of children's books in the home											—

* $p < .05$.** $p < .01$.

Table 5

Prediction of spanish picture vocabulary.

Variable	Block 1			Block 2			Block 3 (full model)		
	B	SEB	β	B	SEB	β	B	SEB	β
Maternal education	0.90	1.32	0.09	0.45	0.93	0.04	0.62	1.08	0.06
Language exposure and usage									
Maternal language				5.41	2.01	0.37**	6.30	2.07	0.43**
Child language				5.67	1.93	0.41**	5.34	1.95	0.38**
Parent-child literacy activities									
Frequency of mother-child book reading							2.84	1.13	0.25*
Frequency of child storytelling							-0.41	1.08	-0.04
Frequency of maternal teaching							-1.63	1.71	-0.09
Parent literacy activities									
Frequency of maternal literacy activities							-3.99	2.63	-0.17
Availability of literacy materials									
Number of children's books in the home							1.11	1.33	0.10

*
p .05.

**
p .01.

Table 6

Prediction of spanish oral comprehension.

Variable	Block 1			Block 2			Block 3 (full model)		
	B	SEB	β	B	SEB	β	B	SEB	β
Maternal education	0.86	1.11	0.10	0.63	0.92		0.70	1.07	0.08
Language exposure and usage									
Maternal language				4.97	1.99	0.40 [*]	5.69	2.06	0.46 ^{**}
Child language				2.62	1.91	0.22	2.81	1.93	0.24
Parent-child literacy activities									
Frequency of mother-child book reading							2.56	1.12	0.27 [*]
Frequency of child storytelling							0.83	1.07	0.09
Frequency of maternal teaching							-1.86	1.70	-0.12
Parent literacy activities									
Frequency of maternal literacy activities							-3.70	2.61	-0.19
Availability of literacy materials									
Number of children's books in the home							1.12	1.33	0.12

* p .05.** p .01.

Table 7

Prediction of english picture vocabulary.

Variable	Block 1			Block 2			Block 3 (full model)		
	B	SEB	β	B	SEB	β	B	SEB	β
Maternal education	-0.32	1.10	-0.04	0.43	1.02	0.01	-0.41	1.23	-0.05
Language exposure and usage									
Maternal language				-0.57	2.21	-0.05	-1.28	2.03	-0.10
Child language				-4.68	2.12	-0.40*	-3.67	2.23	-0.32
Parent-child literacy activities									
Frequency of mother-child book reading							-1.06	1.29	-0.11
Frequency of child storytelling							1.92	1.23	0.21
Frequency of maternal teaching							-0.80	1.95	-0.05
Parent literacy activities									
Frequency of maternal literacy activities							-0.12	3.01	-0.01
Availability of literacy materials									
Number of children's books in the home							0.79	1.53	0.09

* p .05.

** p .01.

Table 8

Prediction of english oral comprehension.

Variable	Block 1			Block 2			Block 3 (full model)		
	B	SEB	β	B	SEB	β	B	SEB	β
Maternal education	-0.31	0.60	-0.07	-0.20	0.60	-0.04	-0.42	0.71	-0.09
Language exposure and usage									
Maternal language				-0.72	1.28	-0.11	-0.78	1.36	-0.12
Child language				-1.43	1.23	-0.22	-0.85	1.28	-0.13
Parent-child literacy activities									
Frequency of mother-child book reading							-0.01	0.74	-0.00
Frequency of child storytelling							1.40	0.71	0.28*
Frequency of maternal teaching							-0.34	1.12	-0.04
Parent literacy activities									
Frequency of maternal literacy activities							-0.21	1.72	-0.19
Availability of literacy materials									
Number of children's books in the home							3.63	0.87	0.07

*
 p .05.