

The Home Literacy Environment and Latino Head Start Children's Emergent Literacy Skills

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This study examined children's early literacy skills in both English and Spanish at entry to preschool to investigate the pattern of association among these skills and their families' home language and literacy practices. The participants were 392 primarily Latino immigrant (85%) families and their children. Mothers completed questionnaires about their families and their home literacy environment (HLE), and children's emergent literacy skills were measured in English and Spanish at the outset of the preschool year. Project assistants interviewed mothers in their homes and tallied the presence of literacy-related materials. Results of structural equation modeling showed that the 3 preliterate skills were significantly associated within and across English and Spanish, suggesting the possible transfer of these early preliterate skills across languages. For the English language HLE, parents' literacy-related behaviors, sibling-child reading, and families' literacy resources were all associated with children's English oral language skills, and their English print knowledge was associated with their home resources. For the Spanish language HLE, only parents' literacy-related behaviors were related to children's Spanish oral language and print knowledge skills. There were no significant cross-linguistic relations between any aspect of the English HLE and children's Spanish preliterate skills, whereas parents' literacy-related behaviors in Spanish were negatively associated with children's English oral language and phonological awareness skills. Given the importance of oral language and vocabulary in promoting children's literacy, these results indicate that parents can support this skill in both languages, but their relative impact seems to be within rather across language.

Keywords: early literacy, preschoolers, Head Start, English language learners, home literacy environment

The early literacy knowledge and skills children bring to kindergarten and first grade from their previous experiences in their homes and preschools form the foundation for learning to read in elementary school. Current research indicates that preschool children's emergent literacy skills, oral language (e.g., vocabulary, syntax/grammar, word knowledge), phonological awareness (e.g., ability to detect and manipulate sounds in oral language independent of meaning), and print knowledge (e.g., letter identification, print concepts) are strong and independent predictors of how

quickly and how well they will read once they are exposed to formal reading instruction (Lonigan, Schatschneider, & Westberg, 2008). For most children, these early literacy skills originate and develop throughout the preschool period (Whitehurst & Lonigan, 1998). However, low-income children and those whose first language is other than English (i.e., English-language learners; ELLs¹) face considerable challenges in becoming skilled readers.

In the United States today, Spanish-speaking children constitute the largest ELL subgroup and are the fastest growing school-age population (McCardle, Mele-McCarthy, Cutting, Leos, & D'Emilio, 2005). In 2006, they represented 34% of Head Start enrollment nationwide (Administration for Children, Youth, and Families, Office of Head Start, 2007). Unfortunately, ELL children tend to have poor literacy outcomes, lower academic achievement, and higher grade repetition and school drop-out rates than do their

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¹ Although schools use proficiency in English to classify children as ELL, the research literature typically classifies children as ELL if Spanish is one of the primary languages spoken in the home. Outside the research literature, such children are often referred to as *language minority youth* (LMY; August & Shanahan, 2006). Children who are LMY may or may not have achieved proficiency in English. To be consistent with other reports, we refer to children who are LMY in this article as ELL, even though we have not classified children according to language proficiency.

non-ELL peers (August & Hakuta, 1997). Although the overall reading scores of both fourth and eighth grade Latino² students improved from 1992 to 2009, there is a persistent gap between Latino and White children and an even larger gap between White and Spanish-speaking ELLs. In 2009, the National Assessment of Educational Progress (U.S. Department of Education, National Center for Education Statistics, 2009) reported a 15-point difference between White and non-ELL Latino eighth grade students and a 39-point difference between ELL and non-ELL Latino eighth grade students.

Many young Latino children also live in poverty. The 2009 U.S. Census Bureau statistics showed that 35% of Latino children under age 5 lived at or below the poverty level, compared with 14% of white children under age 5. The adverse consequences of economic disadvantage for children's early language development and cognitive achievement have been well documented (e.g., Snow, Burns, & Griffin, 1998). When compared with their more advantaged peers, 3- to 5-year-old children living in low-income homes have smaller vocabularies and delayed language skills (Hart & Risley, 1995) and are less likely to identify letters of the alphabet, to count to 20, write their names, and read or pretend to read a storybook (Nord, Lennon, Liu, & Chandler, 2000).

While the poor performance of Latino ELL children has been acknowledged, it remains unclear why they struggle with reading. Some research has suggested that children's home environments do not provide a strong foundation for the development of their early literacy skills. However, recent research has reported individual variation in Latino children's literacy skills (e.g., Lindsey, Manis, & Bailey, 2003; Pérez, Tabors, & Lopéz, 2007) and in their families' home language and literacy practices (Farver, Xu, Eppe, & Lonigan, 2006). Moreover, unlike other low-income children, ELLs are acquiring at least two languages and may be developing literacy skills in both. Currently, little is known about how the pattern of language use in the home may be differentially related to children's early literacy skill development in *both* English and Spanish primarily because extant research has involved small sample sizes and measures that do not tap a range of early literacy skills in both languages. Furthermore, due to an emphasis on parents' involvement in literacy activities, other culturally relevant characteristics of extended family households, such as sibling-child shared reading have been overlooked (Mol, 2010). The process of acculturation, an experience that is relatively unique to immigrant families, is also rarely examined when estimating the contribution of the home literacy environment (HLE) to Latino children's early literacy skills.

Therefore, the primary objective of this study was to extend our prior work with Latino families to examine children's early literacy skills in both English and Spanish at entry to preschool and to investigate the pattern of association among these skills and their families' home language and literacy practices. We were specifically interested in understanding the skills young ELL children initially bring to the preschool setting from experiences in their homes. We used a model that integrated the language of the home literacy activities and children's skill development in both languages. We focused specifically on parent factors that have demonstrated effects on children's early literacy skills, such as their education level, reading habits, and involvement in literacy-related activities; the presence of literacy materials in the home; the

frequency of sibling-child book reading; and mothers' level of acculturation.

The Development of Early Literacy Skills and Reading in ELL Children

In many places in the world, children successfully learn to speak and read two languages. In the United States, however, monolingualism is the norm, and bilingualism is often viewed as a stigma or liability. While language development in bilingual children follows the same pattern as that of monolinguals (Bialystok, 2007), there is variation in how quickly and how well bilingual children acquire a second language and whether they achieve literacy in both. This variation seems to depend on the prestige of their native language, the motivation to speak it, and the opportunities for its use (Grosjean, 1982). Some research on children's first language (L1) and second language (L2) acquisition suggests that the processes are interdependent, and efforts to enhance children's native language proficiency do not impede, but rather support, the acquisition of English and vice versa (Snow et al., 1998). On the other hand, L1 proficiency has also been a predictor of L2 development; often children with weak L1 skills will not acquire an L2 as quickly as those with more developed L1 skills (Cummins, 1979).

Recent longitudinal studies with ELL children, however, indicate that a similar set of skills underlies the development of reading-related and reading skills for both monolingual English speakers and ELL children. Lesaux, Rupp, and Siegel (2007) investigated reading development with 689 Canadian monolingual English-speaking children and 135 ELL children (representing 33 different native languages) from kindergarten through fourth grade. Their results showed that although the ELL children had slightly lower performance on several kindergarten tasks, differences between the two groups at fourth grade were negligible. For both groups, kindergarten print knowledge, phonological memory and awareness, and oral language variables predicted fourth grade word-decoding and reading-comprehension scores. Studies of ELL children with other home languages have reported similar findings (e.g., Chiappe, Siegel, & Wade-Woolley, 2002).

Research exclusively on Spanish-speaking early elementary ELL children revealed a similar pattern of predictors for reading in English. Gottardo and Mueller (2009) followed 79 ELL children primarily of Mexican descent (80%) from first to second grade to examine whether children's skills in Spanish or English were more likely to predict reading comprehension. Their results showed that only English vocabulary and word-decoding skills predicted children's English reading comprehension, and only English phonological awareness predicted word-decoding skills. Mancilla-Martinez and Lesaux (2010) followed 173 ELL children from low-income families in the northeastern United States to investigate how growth rates in their expressive vocabulary and word-reading skills in Spanish and English impacted their English reading comprehension from ages 4.5 to 8 years. The results showed

² Classification of individuals in U.S. government reports (including the National Assessment of Educational Progress) follows the standard of the U.S. Census, which designates individuals of Latin American heritage as Hispanics. Throughout this article, we refer to individuals who trace their ancestry to Latin America as Latinos.

that while initial status and growth in children's English vocabulary and phonological awareness were significant unique predictors of fifth grade reading comprehension, there were no significant findings for Spanish. In another study, Nakamoto, Lindsey, and Manis (2007) examined children's growth in English word decoding and reading comprehension with 261 south Texas ELLs from first to sixth grades. Their results showed that English oral language, phonological awareness, and rapid naming (lexical access) skills in first grade predicted children's initial status for reading comprehension and word-decoding skills. However, only phonological awareness and rapid naming predicted growth in word-decoding skills, and only oral language measures predicted growth in reading comprehension.

The developmental pattern for preschool Spanish-speaking ELLs' early literacy skills is less clear because, with few exceptions, studies have not investigated how these skills are interrelated and develop over the preschool period. Páez et al. (2007) compared the development of oral language and early literacy skills in English and Spanish of 319 ELL children in the United States with 144 monolingual Puerto Rican children across a preschool year. While ELL children scored below average in both Spanish and English compared with the monolingual norms at both time points, the ELL children showed significant growth in most skills across the preschool year.

In two studies on the development of phonological awareness with Spanish-speaking preschool children, Jiménez González and his colleagues (Jiménez González & García, 1995; Jiménez González & Ortiz, 1993) suggested that the phonological awareness develops in young children in a similar sequence in both English and Spanish. Moreover, because English and Spanish share commonalities in syllable structure, they also proposed that the influence of word linguistic properties on phonological awareness in English (e.g., syllable-initial consonant cluster and phoneme articulatory properties) can be extrapolated to Spanish and vice versa; indicating a possible transfer of skills across two languages.

In general, studies of Spanish-speaking ELL children indicate that the reading-related and reading skills predictive of reading outcomes are nearly identical for monolingual English speakers and ELL children. That is, regardless of whether children are ELL or not, the print knowledge, phonological processing skills, and oral language skills that develop in preschool and early elementary school are associated to varying degrees with both later word-reading skills and reading comprehension. However, ELL children may have weaker English oral language skills at school entry than non-ELL children, and they may experience slower growth in these skills not only because they are acquiring skills in two languages but because these skills may be different in the two languages. Also, vocabulary development may be specific to the context in which a child learns and needs to use a word, and vocabulary is dependent on the amount of input in each language (e.g., Pearson, Fernández, Lewedeg, & Oller, 1997; Scheffner Hammer, Lawrence, & Miccio, 2008). Clearly, first as well as second language acquisition requires stimulating linguistic environments to support children's vocabulary and early literacy development. For young children who have not begun formal schooling aspects of the home environment, such as how often and how well parents and other adults communicate with them and in what

languages, may be important predictors of how they develop the requisite skills to be able to read.

The Home Literacy and Language Environment

The role of parents. Parents can support children's early literacy skill development by engaging in shared reading, teaching, and modeling literacy-related skills and by providing books, educational games, and an overall print-rich environment in their homes (Bus et al., 1995; Scarborough & Dobrich, 1994). Yet, it remains unclear how variations in parents' literacy-related activities impact the development of each of the three key early literacy skills, especially among children who are exposed to an L1 and L2 in their homes. Some research with monolingual populations indicates that shared reading primarily affects children's oral language rather than their phonological awareness or print knowledge skills (Leseman & de Jong, 1998; Sénéchal, LeFevre, Hudson, & Lawson, 1996). Other studies that included broader composites of parent activities and measures of home literacy resources have reported significant relations between the HLE and both oral language and code-related skills (Evans, Shaw, & Bell, 2000; Frijters, Barron, & Brunello, 2000; Griffin & Morrison, 1997; Sénéchal & LeFevre, 2002; Storch & Whitehurst, 2002) and found that parent teaching, not shared reading, predicted phonological awareness, print knowledge, or both for middle-class kindergarten and first grade children (Levy, Gong, Hessels, Evans, & Jared, 2006; Sénéchal, LeFevre, Thomas, & Daley, 1998). For example, Burgess, Hecht, and Lonigan (2002) examined the relation between parents' ability and inclination to provide home literacy opportunities (i.e., access to resources, modeling of literate behavior, and engaging their preschoolers in literacy activities) and children's emergent literacy skills. Their results showed that for English-speaking middle-class families, parents' direct teaching and structuring of the HLE produced the strongest effects on children's oral language, phonological sensitivity, and print knowledge.

There are few studies of low-income families' HLE. However, the emerging pattern of findings suggests that while there is somewhat less frequent parent-child book reading (Yarosz & Barnett, 2001) and fewer books available (Raikes et al., 2006) compared with middle-income families, significant associations have been reported between home literacy-related activities and young children's language and literacy skill development. In an investigation of the HLE of 1,046 Early Head Start children at ages 14, 24, and 36 months, Rodríguez et al. (2009) found that parents' engagement in literacy activities, quality of mother-child engagement, and provision of learning materials uniquely predicted children's language and cognitive skills at each age and explained 27% of their language and cognitive skills at 36 months. Foster, Lambert, Abbott-Shim, McCarty, and Franz (2005) examined several HLE variables, family risk factors, and early literacy outcomes with 325 multi-ethnic Head Start children. Their results showed that the HLE (parent-child reading, enrichment and literacy activities, books, and materials) mediated the relation between family socioeconomic status and children's preliteracy skills.

Language of the HLE. While parents can involve their children in a range of activities that develop their early literacy skills, the language parents use is likely to vary and to have an effect on children's language and early literacy skills in their L1

and L2 (e.g., Scheele, Leseman, & Mayo, 2010). To date, only a few studies have directly examined the influence of home language use patterns on young children's early literacy skills in their L1 and L2. In a cross-sectional study of children from kindergarten to fifth grade, Oller & Eilers (2002) found that across all age groups, home language use was related to children's vocabulary growth in both Spanish and English. In homes where families spoke some English, children had higher English vocabulary levels; the reverse was true for children whose families spoke only Spanish, and while group differences in their English language vocabulary lessened by fifth grade, it remained for their Spanish vocabulary.

Scheffner Hammer, Lawrence, and Miccio (2007, 2008) reported a similar pattern of findings in a study comparing two groups of Spanish-speaking ELL children of Puerto Rican descent across 2 years of Head Start participation. Children whose families spoke primarily English or both Spanish and English experienced significant growth in their English language skills over the 2-year period, whereas children whose families spoke primarily Spanish both started and ended Head Start with lower language scores. Duursma and colleagues (2007) examined predictors of Spanish and English vocabulary for 96 fifth-grade ELL children. Their results showed that families' language use in the home was associated with children's vocabulary in both languages.

Overall, studies of the home language environment suggest that children's language and literacy development may depend on their parents' language use or preference in the home. However, it remains unclear how parents' differential use of Spanish and English is associated with children's *preliteracy* skills in their L1 and L2. Moreover, given that low-income ELL children may not be performing at levels comparable with their monolingual or non-at-risk peers, it is important to examine how variations in the language of the HLE are associated with their initial vocabulary and literacy skill development at the beginning of preschool.

Home literacy resources. Books, print materials, and educational toys and games provide opportunities for meaningful adult-child interaction and support the development of children's early literacy skills, intrinsic motivation, and positive attitudes toward learning; the important predictors of later reading achievement and school success (Gottfried, Fleming, & Gottfried, 1998). Typically, home resources have been assessed by mothers' estimates of books and print materials. As a result, in some studies home resources are confounded with parent involvement or collapsed into an overall HLE composite. Nevertheless, this line of research has reported associations between estimates of books in the home and young children's receptive and expressive language skills (e.g., Payne, Whitehurst, & Angell, 1994) and their school readiness skills (Christian, Morrison, & Bryant, 1998). Similarly, using an indirect measure of home resources via print exposure where mothers and children completed checklists of story book titles, Sénéchal et al. (1996) found that children's familiarity with storybooks was linked to their vocabulary and reading skills. Although these findings are noteworthy, they also highlight the need to assess children's home literacy resources independent of parents' potentially biased or inaccurate estimates and to examine the language of these materials and resources. Accordingly, we included an observation of the presence or absence and language of these materials.

Sibling-child shared reading. Older siblings can be instrumental in developing ELL children's early language and literacy skills in their L1 and L2, particularly in Latino families where parents may not be fluent in English. In a study of 16 Bangladeshi and British families living in London's East End, Gregory (2001) documented how older siblings provided mutually enjoyable and collaborative learning experiences for their younger siblings while reading books together and "playing school." Small case studies of Latino families have also described how young children have multiple opportunities to learn not only from their parents, but also from older siblings, cousins, and grandparents who scaffold their preliteracy skills during bouts of shared reading in both Spanish and English (see Zentella, 2005).

Acculturation

Defined as "the extent to which individuals have maintained their culture of origin or adapted to the larger society" (Phinney, 1996, p. 921), acculturation can have a significant impact on immigrant families. Although giving up their culture to fit in (i.e., assimilation) can produce tension in immigrant individuals and their families, public health studies show that as they become more oriented toward the American mainstream, they are more likely to access preventive health and disabilities services (Lara, Gamboa, Kahramanian, Morales, & Hayes Bautista, 2005), and parents tend to adopt "Americanized" child-rearing values, goals, and behaviors and encourage behaviors associated with positive academic outcomes in their children (Farver & Lee-Shin, 2000). In a recent study of Puerto Rican children living in the United States, Scheffner Hammer, Miccio, and Wagstaff (2003) found that mothers of children who were learning English simultaneously (rather than sequentially) were more likely to teach their children pre-academic and literacy skills and to have a stronger achievement orientation than were mothers of sequential ELLs who emphasized the development of social skills. These differences were attributed, in part, to mothers' years of U.S. residence and the gradual shift in their child-rearing practices as they became familiar with the school system and oriented toward the lifestyle.

We acknowledge that there are different styles of acculturation (see Sam & Berry, 2006, for a review). However, we focused on two broad dimensions that may be relevant to Latino parents' engagement in English and Spanish literacy-related activities: their relative orientation toward the American mainstream culture or toward their natal Latino culture operationalized as parents' language skills in both English and Spanish, and their degree, frequency, and intensity of contact and identification with American or Latino culture (Cuellar, Arnold, & Maldonado, 1995). Parents who are more fluent in English and have begun to adapt to the American lifestyle may be more likely to encourage their children to develop literacy skills in English and perhaps to read for pleasure in English themselves (i.e., modeling their own habits). On the other hand, parents who speak English yet continue to maintain a strong orientation towards their natal culture may encourage their children to develop language and literacy skills in both languages by emphasizing Spanish in the home and English in their preschools and other settings.

The Current Study

The overall goals of the study were to determine (a) the extent of Latino ELL children's early literacy skills in both English and Spanish at the beginning of the preschool year, (b) the relations among these skills in English and Spanish, and (c) how aspects of the families' HLEs and language use patterns are related to the three emergent literacy skills in English and Spanish, controlling for children's age and nonverbal cognitive ability, parents' education levels, and mothers' acculturation—factors that potentially influence children's opportunities for learning.

Method

Participants. The participants were 392 (211 boys, 181 girls) Latino children (age 41–60 months; $M = 51.44$, $SD = 4.49$) who were enrolled in 30 Head Start centers located in several inner-city neighborhoods of Los Angeles, California. All children were born in the United States, whereas most parents were not. Families were primarily two-parent households (80%), with two to 12 individuals, and were of low socioeconomic status (see Table 1). More than half the parents reported less than a high school education; 51% of the mothers were unemployed, 18% worked part time, and 12% worked full time in unskilled (i.e., food service, machine operators, laborers) or (semi-skilled clerks, technicians, sales) positions. Most fathers were employed either full (67%) or part (10%) time in positions similar to the mothers.

Procedure. Preschool staff and parents were told that we wanted to learn about children's readiness for school; participation was voluntary and limited to children who were not receiving

resource help for speech and language delays. Data were collected by a team of trained English–Spanish bilingual graduate and undergraduate psychology students. In October, children's literacy skills were assessed individually in English and Spanish on two different days in a quiet area of the preschool, within the same week, and counterbalanced by language. Children received instruction about the assessments administration in both languages. During the testing, the assistants spoke to the children in the language of the assessment to avoid code switching. If children responded in the alternate language, they were reminded of the language to use. Credit was given only if the child produced the correct answer in the language being assessed. Mothers completed questionnaires in either English or Spanish and returned them to the preschools in sealed envelopes. Project assistants carried out a 1-hr home interview with the mothers and observed and tallied the presence or absence of home resources and literacy materials.

Child assessments.

Cognitive ability. Children were administered three subtests of the Stanford–Binet Intelligence Scale–4th Edition (Thorndike, Hagen, & Sattler, 1986) to allow us to obtain an estimate of nonverbal cognitive ability. The Pattern Analysis subtest involves shape-like puzzles and replication of increasing complex geometric patterns, the Copying subtest involves building or drawing a pattern following a model, and the Bead Memory subtest involves recalling visually presented bead-like objects or reproducing stacked beads from a picture. The subtests were averaged to create a nonverbal cognitive ability composite score. These subtests have high reliability (i.e., $\alpha = .85-.90$) for this age group and evidence of validity as indicated by high correlations with the full-scale score of

Table 1
Characteristics of Participating Families

Characteristics	Range	Mean or percentage	SD
Children's age	41–60 months	51.44	4.49
Family size	2–12 individuals	5.25	1.87
Marital status			
Married/living with partner	316	80%	
Single	57	15%	
Separated/divorced	19	5%	
Mother/father country of origin			
United States	58/43	15%/11%	
Urban Mexico	105/85	27%/22%	
Rural Mexico	156/187	40%/48%	
Urban Central America	51/66	13%/17%	
Rural Central America	23/11	6%/3%	
Family education levels	1–5 ^a		
Mother		2.01	1.06
Father		2.02	1.04
Grandmother		1.49	0.86
Grandfather		1.73	1.05
Parents' reading skills ^b	1 (poor)–5 (excellent)		
Mother English		2.30	1.40
Mother Spanish		3.96	1.21
Father English		2.34	1.48
Father Spanish		3.95	1.32
Fathers' years of U.S. residence (for immigrants)	1–49 years	19.03	6.67
Mothers' years of U.S. residence (for immigrants)	1–42 years	17.45	8.12

^a 1 = < 7th grade; 2 = middle school; 3 = some high school; 4 = high school; 5 = some college/technical training. ^b Parents' self-reported reading skills were not included in our models of home literacy environment due to the high correlation with their acculturation to American culture ($r = .67$, $p < .01$).

the Stanford–Binet IV. The average scaled score for children’s cognitive ability, computed from three nonverbal subtests of the Stanford–Binet IV was 42.09 ($SD = 4.62$), indicated that the average child scored in the below-average range.

Oral language. Children were administered the English and Spanish language versions of the Preschool Language Scales (PLS-4; Zimmerman, Steiner, & Pond, 2002) to assess their vocal development, social communication, semantics, structure, and integrative thinking in both Receptive (Auditory Comprehension subscale) and Expressive (Expressive Communication subscale) domains. In both versions, children respond to direct questions by pointing to pictures or using objects. These measures have high reliability (i.e., $\alpha = .84$ to $.88$) and evidence of validity with children of this age group (e.g., $\alpha = .92$ – $.95$ for English; and $\alpha = .86$ – $.90$ for Spanish).

Phonological awareness. Children were administered the Blending and Elision subtests from the Preschool Comprehensive Test of Phonological and Print Processing (P-CTOPPP; Lonigan, Wagner, Torgesen, & Rashotte, 2002) and the P-CTOPPP–Spanish (Lonigan, Farver, & Eppe, 2002). The P-CTOPPP is the development version of the Test of Preschool Early Literacy (TOPEL; Lonigan, Wagner, Torgesen, & Rashotte, 2007), and the P-CTOPPP–Spanish is an adapted version of the P-CTOPPP. The Blending subtest consists of 21 items in English and 18 items in Spanish. In the English version, nine items are multiple choice and 12 items are free response. In the Spanish version, nine items are multiple-choice items (with pictures) and nine items are free-response items (without pictures). Children are asked to blend words, syllables, or phonemes to create real words (English $\alpha = .86$; Spanish $\alpha = .81$). The English and Spanish Elision subtests each consist of nine multiple-choice and nine free-response items in which children are asked to remove phonemes, syllables, or half of a compound word and to determine the word that remains (English $\alpha = .72$; Spanish $\alpha = .66$). Both subtests were constructed according to the developmental progression of phonological awareness (i.e., from word awareness to phoneme awareness). Internal consistency reliabilities for these subtests is high for 3-, 4-, and 5-year-old children (i.e., $\alpha = .85$ – $.87$), and both subtests have moderate validity coefficients with measures of phonological awareness ($r_s = .33$ – $.53$).

Print knowledge. Children were administered the 36-item English and Spanish Print Knowledge subtests of the P-CTOPPP (mentioned earlier) to assess their early print concepts, alphabet recognition, letter-name knowledge, and letter-sound knowledge (English $\alpha = .93$; Spanish $\alpha = .88$). The letter-name and letter-sound knowledge items included both multiple-choice and free-response formats. Internal consistency is high for 3-, 4-, and 5-year-old children (i.e., English $\alpha = .89$ – $.95$; Spanish $\alpha = .85$ – $.94$), and the subtest has moderate to high validity correlations with measures of alphabet and print knowledge (e.g., $r = .58$ with the Test of Early Reading Achievement–III; Reid, Hresko, & Hammill, 2001). All indices of internal consistency were computed on the children in this study. For the P-CTOPPP, these values were similar to those obtained from a larger development sample of a nationally representative group of preschoolers (i.e., α s: Blending = $.87$, Elision = $.86$, Print Knowledge = $.95$).

Parent measures.

Family demography. Mothers completed a questionnaire about their education, employment, country of origin, years of U.S. residence, and so forth.

Parents’ involvement in literacy activities and literacy habits in English. Mothers completed the Home Literacy Environment Questionnaire (HLEQ; Farver et al., 2006) containing 13 items rated on a 7-point scale (0 = *never*; 6 = *daily*). Two subscales from the HLEQ were used in the analyses: Mothers’ Involvement in Literacy Activities–English (five items, e.g., “How often do you: Read to your child in English? Teach letters of the English alphabet? Play rhyming games in English? Point out letters/words and tell him/her what they say in English? and so on; $\alpha = .76$), and Parents’ Literacy Habits–English (three items, e.g., frequency that parents read in English for pleasure; $\alpha = .78$).

Acculturation. Mothers completed the 30-item Acculturation Rating Scale for Mexican Americans–II (ARMSA–II; Cuellar et al., 1995) that includes two subscales: Orientation to Latino and Orientation to American culture (e.g., predominant language use; language skills in English and Spanish; and degree, frequency, and intensity of contact with American or Latino culture). Items are rated on a 5-point scale (1 = *never*, 5 = *very often*), with high scores representing an orientation toward the Latino ($\alpha = .88$) or American culture ($\alpha = .83$). Items were averaged within each subscale to derive the mothers’ orientation to Latino culture or American culture.

Home visits.

Parents’ involvement in literacy activities and literacy habits in Spanish. Project assistants interviewed mothers in their homes using the Emergent Literacy Ecocultural Family Interview (EL-EFI; Weisner & Lieber, 2002) developed for this project. First, mothers completed a sorting task to determine the type and frequency of activities that took place in their homes in the previous 2 months. They sorted 18 activity cards (e.g., reading with their child) next to five frequency cards labeled 1 (*never*), 2 (*less than once a month*), 3 (*monthly*), 4 (*weekly*), and 5 (*daily*), and specified whether the activity was in English or Spanish. Average frequency scores (1 = *never*; 5 = *daily*) were computed for seven items that pertained to parents’ literacy involvement and literacy habits in Spanish and two composite variables were created: (a) mothers’ involvement in literacy activities–Spanish (five items; frequency of reading to child in Spanish; teaching letters of the Spanish alphabet; playing rhyming games in Spanish; pointing out letters/words and telling him/her what they say in Spanish; naming things in Spanish, and so on; $\alpha = .91$) and (b) parents’ literacy habits–Spanish (two items; frequency that parents read in Spanish for pleasure, $r = .69$, $p < .01$).

Sibling–child reading. In the second part of the EL-EFI, mothers responded to 57 questions about their daily routines, home literacy practices (with whom they take place, in what language, and whether the child was interested and enjoyed them). Mothers’ responses to two questions were included in the analyses “Frequency of sibling–child reading in English and Spanish (1 = *never*; 5 = *daily*).”

English and Spanish home literacy resources. While mothers were interviewed, a second project assistant played games or read with the child and visited with other people present. The assistant completed a 27-item checklist for the presence (0 = *no*; 1 = *yes*) of literacy-related materials and noted their language

based on an informal "tour of the home" provided by the child or another household member. Most children were interested in showing the visitor their area in the home, toys, books, paintings, drawings, and so forth. Two composite variables, English home literacy resources ($\alpha = .66$) and Spanish home literacy resources ($\alpha = .64$), were created from five items: child reading books (purchased or from library) in English/Spanish, alphabet books and toys in English/Spanish, educational games, and print materials in English/Spanish.

Results

Preliminary Analyses

Descriptive statistics. As shown in Table 2, children scored below the standardized mean for the Preschool Language Scale (4th ed.; Zimmerman et al., 2002) receptive oral language test—English $t(391) = 29.79$, $d = 1.50$; Spanish $t(367) = 23.77$, $d = 1.15$ —and expressive oral language test—English $t(391) = 30.53$, $d = 1.54$; Spanish $t(367) = 16.92$, $d = 0.88$. Dependent t tests comparing the preliteracy assessments and aspects of the HLE for language showed children's expressive, $t(367) = 11.52$, $p < .01$, $d = 0.82$, and receptive, $t(367) = 7.69$, $p < .01$, $d = 0.48$, oral language skills were significantly higher in Spanish than in English; there were more English than Spanish language print and educational materials in home, $t(361) = 17.80$, $p < .01$, $d = 0.94$, and more frequent sibling-child book reading in English than in

Spanish, $t(391) = 8.96$, $p < .01$, $d = 0.45$. There were no other significant differences.

Correlations among children's preliteracy skills and HLEs in English and Spanish. Zero-order correlations were calculated for the preliteracy skills and aspects of the HLEs within and between languages. Children's English ($rs = .33-.72$) and Spanish ($rs = .22-.66$) preliteracy skills were positively correlated within and across languages ($rs = .14-.53$) with two exceptions: Spanish expressive oral language skills were not associated with their English expressive and receptive oral language, blending, and elision skills, and their Spanish receptive oral language skills were not associated with their English elision skills (see Table 3).

Mothers' involvement in literacy-related activities, parents' literacy habits, and home literacy resources were positively correlated with each other within languages ($rs = .16-.68$). Cross-linguistic comparisons showed that the frequency of sibling-child reading was correlated with English home literacy resources, but not with Spanish. Mothers' involvement in Spanish literacy activities was negatively related to English home literacy resources. Parents' Spanish literacy habits were positively correlated with their English literacy habits, but negatively correlated with English home literacy resources (see Table 4).

As shown in Table 5, children's English preliteracy skills were positively associated with most aspects of the English HLE. Parents' education levels were associated with children's English expressive oral language and print knowledge skills. Children's English expressive and receptive oral language and phonological awareness skills were positively associated with mothers' orienta-

Table 2
Descriptive Statistics for the Variables

Variable	Type of measure	Range	Mean	SD
Children's Stanford-Binet Nonverbal Cognitive Ability ^a	Standard assessment	30-62	42.09	4.62
Children's English preliteracy skills				
Receptive oral language standard score	Standard assessment	50-136	76.14	15.38
Expressive oral language standard score	Standard assessment	50-139	69.99	18.47
Blending	Standard assessment	1-21	9.53	4.51
Elision	Standard assessment	0-18	5.18	2.32
Print knowledge	Standard assessment	1-36	7.46	4.86
Children's Spanish preliteracy skills ^b				
Receptive oral language standard score	Standard assessment	50-131	83.36	14.43
Expressive oral language standard score	Standard assessment	50-133	84.69	17.36
Blending	Standard assessment	1-18	9.78	4.12
Elision	Standard assessment	0-14	5.44	2.38
Print knowledge	Standard assessment	0-30	7.13	3.60
Home literacy environment-English				
Mothers' involvement in literacy activities	Parent questionnaire	0-6	3.21	1.15
Parents' literacy habits	Parent questionnaire	0-6	2.64	1.03
Frequency of child-sibling reading	EL-EFI	1-5	2.07	1.60
Home literacy resources	Observation	0-5	2.91	1.46
Home literacy environment-Spanish				
Mothers' involvement in literacy activities	EL-EFI	1-5	3.70	1.20
Parents' literacy habits	EL-EFI	1-5	3.20	1.12
Frequency of child-sibling reading	EL-EFI	1-5	1.36	1.06
Home literacy resources	Observation	0-5	1.15	1.26
Mothers' acculturation-Orientation to American culture	Parent questionnaire	1-5	2.45	0.88
Mothers' acculturation-Orientation to Latino culture	Parent questionnaire	1-5	4.31	0.60

Note. $N = 330-392$; EL-EFI = Emergent Literacy Ecocultural Family Interview.

^a Standardized mean of bead memory, pattern analysis, and copying subtests. ^b 24 children did not receive the Spanish language version of the literacy assessments.

Table 3
Cross Linguistic Correlations Between Children's Preliteracy Skills in English and Spanish

Skills	1	2	3	4	5	6	7	8	9	10
1. Receptive oral language (English)	—									
2. Expressive oral language (English)	.72**	—								
3. Blending (English)	.45**	.44**	—							
4. Elision (English)	.38**	.40**	.51**	—						
5. Print knowledge (English)	.33**	.36**	.33**	.36**	—					
6. Receptive oral language (Spanish)	.25**	.20**	.19**	.10	.22**	—				
7. Expressive oral language (Spanish)	.10	.04	.14	.06	.21**	.66**	—			
8. Blending (Spanish)	.23**	.16**	.43**	.29**	.20**	.26**	.28**	—		
9. Elision (Spanish)	.15**	.14**	.26**	.24**	.16**	.22**	.28**	.30**	—	
10. Print knowledge (Spanish)	.16**	.15**	.22**	.16**	.53**	.31**	.30**	.30**	.24**	—

Note. $N = 368-392$.

** $p < .01$ (Given the large sample size, we chose to use .01 as the alpha level).

tion to American culture and negatively associated with mothers' orientation to Latino culture.

Children's Spanish expressive and receptive oral language skills were positively correlated with mothers' involvement in Spanish literacy activities. Spanish print knowledge skills were positively associated with parents' Spanish literacy habits, mothers' involvement in literacy activities in Spanish, and Spanish home literacy resources. Mothers' orientation to Latino culture was positively associated with children's Spanish receptive and expressive oral language skills.

Cross-linguistic comparisons of the HLEs and children's preliteracy skills showed that the English HLE was not correlated with any of the Spanish preliteracy skills with one exception: mothers' involvement in literacy activities in English was positively correlated with children's Spanish print knowledge skills. For the Spanish HLE, mothers' involvement in literacy activities in Spanish was negatively associated with children's English receptive and expressive oral language, blending, and elision skills. Parents' Spanish literacy habits were negatively correlated with children's English receptive and expressive oral language skills.

Relations Between Children's English and Spanish Preliteracy Skills

We examined the relation between children's English and Spanish preliteracy skills using confirmatory factor analyses (CFA). Each preliteracy skill was specified a nonzero loading on the

construct it was designed to measure and zero loadings on other constructs; cross-linguistic relations were freely estimated between the latent constructs of the English and Spanish preliteracy skills (see Figure 1, on the left). We reported chi-square statistics and four model fit indices: root-mean-square error of approximation (RMSEA), standardized root-mean-square residual (SRMR), comparative fit index (CFI), and nonnormed fit index/Tucker-Lewis index (NNFI/TLI) for four reasons. The reported indices represent a spectrum of model fit measures that describe absolute fit (χ^2 and SRMR), employ parsimony correction (RMSEA), estimate comparative fit (CFI and NNFI/TLI), and correct for model complexity (NNFI/TLI). Typically, a reasonable model fit will have CFI and NNFI/TLI higher than .90, SRMR less than .08, and RMSEA less than .06 (Brown, 2006; Hu & Bentler, 1999).

The model for the English and Spanish preliteracy skills fit the data satisfactorily: $\chi^2(22) = 37.68$, $p < .05$, RMSEA = .04, SRMR = .03, CFI = .99, NNFI/TLI = .98. The factor loadings ranged from .47 to .85. The six latent factors—oral language, phonological awareness, and print knowledge in English and Spanish—were all positively associated with each other (r ranged from .21 to .78, $ps < .01$; see Table 6a).

Relations Between Aspects of the HLEs in English and Spanish

We carried out CFA to examine the relations between aspects of the English and Spanish HLEs (Figure 1, on the right). We as-

Table 4
Correlations Between Aspects of the Families' English and Spanish Home Literacy Environments

Aspects	1	2	3	4	5	6	7	8
1. Mothers' involvement in literacy (English)	—							
2. Parents' literacy habits (English)	.34**	—						
3. Frequency of sibling reading (English)	.07	.03	—					
4. Home literacy resources (English)	.16**	.27**	.19**	—				
5. Mothers' involvement in literacy (Spanish)	.07	-.01	-.09	-.15**	—			
6. Parents' literacy habits (Spanish)	.05	.15**	-.02	-.14**	.68**	—		
7. Frequency of sibling reading (Spanish)	.05	-.04	-.09	-.08	.01	-.06	—	
8. Home literacy resources (Spanish)	.13	.02	-.02	.05	.32**	.20**	.01	—

Note. $N = 361-392$.

** $p < .01$ (Given the large sample size, we used .01 as the alpha level).

Table 5

Correlations Between Aspects of the English and Spanish Home Literacy Environments and Children's Preliteracy Skills in English and Spanish

Aspect	English preliteracy skills					Spanish preliteracy skills				
	Oral language					Oral language				
	Receptive	Expressive	Blending	Elision	Print	Receptive	Expressive	Blending	Elision	Print
1. Mothers' involvement in literacy (English)	.23**	.19**	.11	.15**	.15**	.09	.05	.03	.08	.14**
2. Parents' literacy habits (English)	.23**	.26**	.13	.14**	.14**	-.05	-.08	.02	.01	.08
3. Frequency of sibling reading (English)	.22**	.20**	.15**	.10	.07	-.01	.01	.05	-.04	.05
4. Home literacy resources (English)	.32**	.31**	.20**	.21**	.21**	.10	-.02	.05	.01	.09
5. Mothers' involvement in literacy (Spanish)	-.22**	-.28**	-.17**	-.14**	-.04	.15**	.19**	.06	.05	.16**
6. Parents' literacy habits (Spanish)	-.13**	-.19**	-.13	-.11	.02	.10	.09	.04	.05	.18**
7. Frequency of sibling reading (Spanish)	-.11	-.11	-.06	-.05	-.09	.03	.06	.06	.08	.00
8. Home literacy resources (Spanish)	-.03	-.05	-.02	-.01	.04	.09	.13	.03	.03	.14
9. Children's age	.11	.07	.29**	.27**	.20**	-.08	.02	.25**	.20**	.24**
10. Cognitive ability	.19**	.21**	.10	.10	.22**	.26**	.20**	.08	.12	.14**
11. Mothers' education level	.12	.21**	.04	.07	.15**	-.01	-.02	-.04	-.02	.09
12. Fathers' education level	.19**	.28**	.11	.06	.14**	.10	-.00	-.04	.03	.01
13. Orientation to American culture	.24**	.29**	.18**	.21**	.09	-.07	-.09	.00	-.02	-.06
14. Orientation to Latino culture	-.21**	-.26**	-.15**	-.16**	-.09	.13**	.13**	.01	.00	.09

Note. $N = 330\text{--}392$. Nos. 1–2 and 11–14: parent questionnaire; Nos. 3, 5–7: Ecocultural Family Interview; Nos. 4 and 8: observations; No. 10 = standard assessment.

** $p < .01$ (Given the large sample size, we used .01 as the alpha level).

essed the English HLE–Parent factor using two subscales of the HLEQ: Mothers' Involvement in Literacy Activities in English and Parents' Literacy Habits in English. The two indicators for the Spanish HLE–parent factor were derived from the mothers' sorting task: Mothers' Involvement in Literacy Activities in Spanish and Parents' Literacy Habits in Spanish. The English and Spanish HLE–sibling factors were measured by one indicator: the frequency of sibling–child reading in English or Spanish. To create two indicators for the home literacy resources factors in English and Spanish, we combined individual observational items into two parcels (Joreskog & Yang, 1996; MacCallum, Widaman, Zhang, & Hong, 1999), one with two items that assessed availability of print materials (i.e., reading/alphabet and picture books) in English or Spanish, and another with three items that assessed availability of educational games and toys in English or Spanish. The average scores within the two parcels in English or Spanish were used as two indicators for the English and Spanish home literacy resources factors.

Because some variables were skewed (e.g., the frequency of sibling–child reading), we used robust maximum likelihood (ML) method and applied the Satorra–Bentler rescaled chi-square (Satorra & Bentler, 1988) that adjusts the normal-theory ML chi-square value so that the corrected chi-square value more closely approximates the chi-square distribution. The results based on the robust ML method were similar to the traditional ML method; therefore, our results are based on the traditional ML method.

To explore the relation between the HLEs in the two languages, we freely estimated all the cross-linguistic relations between the HLEs in English and Spanish (see Figure 1, on the right). The model fit the data reasonably: $\chi^2(22) = 57.60, p < .01, RMSEA =$

.07, SRMR = .04, CFI = .93, NNFI/TLI = .86.³ The factor loadings ranged from .51 to .93. As shown in Table 6b, the English home literacy resources were significantly associated with the English HLE–parent ($r = .47, p < .01$) and HLE–sibling factors ($r = .23, p < .01$), whereas Spanish home literacy resources were significantly related to the Spanish HLE–parent factor ($r = .39, p < .01$). In terms of the cross-linguistic relations, English home literacy resources were negatively related to the Spanish HLE–parent factor ($r = -.21, p < .01$), whereas Spanish home literacy resources were positively associated with the English HLE–parent factor ($r = .20, p < .05$).

Relations Among the HLEs and the Preliteracy Skills in English and Spanish, Controlling for Children's Age and Cognitive Ability and Parents' Education and Acculturation

The relations among the HLEs and the preliteracy skills in both languages were examined using structural equation modeling (SEM). Given the lack of research in this area, we tested a nonrestrictive model wherein all possible relations between the HLEs and children's preliteracy skills were estimated (see Figure

³ Although most fit indices suggested an acceptable fit of the model (Hu & Bentler, 1999), the value of NNFI/TLI was lower than .90. Because each fit index uses unique formula, it is not uncommon for them to differ in SEM analyses. Given that there was no clear theoretical rationale to modify the model, we decided not to change the model specification.

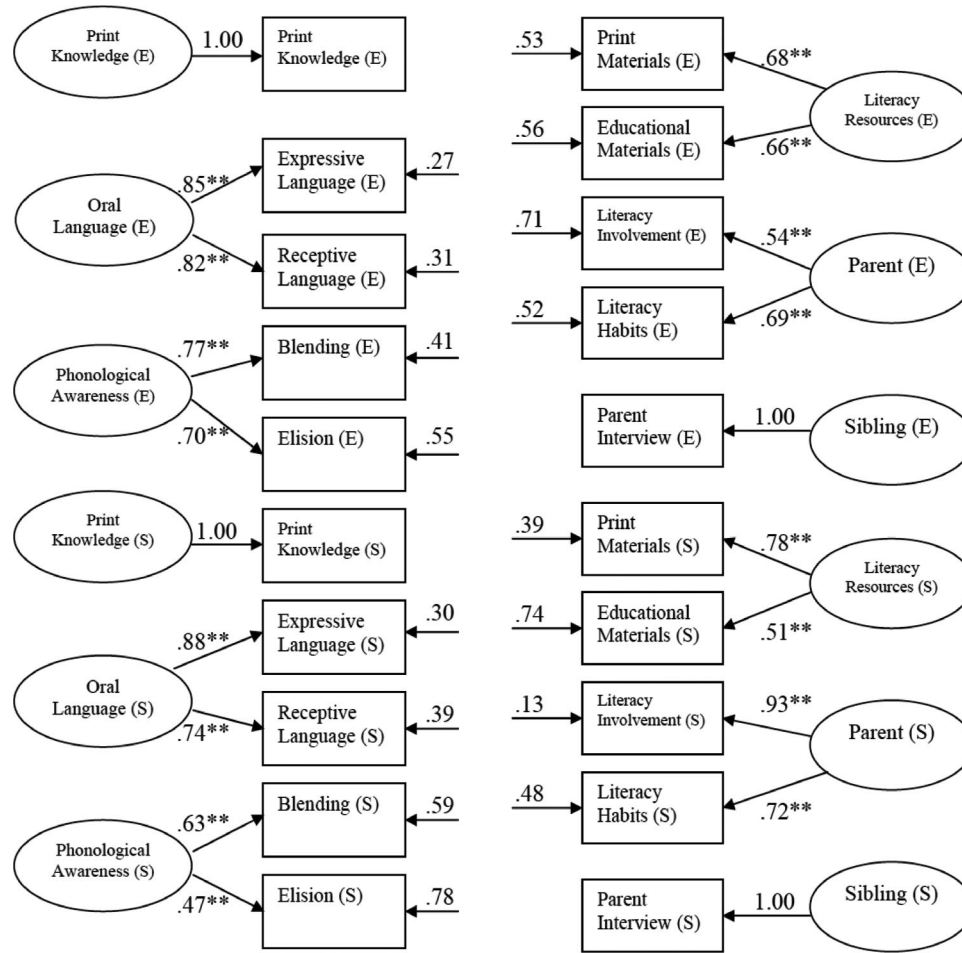


Figure 1. The relation between children's preliteracy skills in English and Spanish (left) and between the home literacy environments (HLEs) in English and Spanish (right). Standardized parameter estimates were reported; the relations among aspects of preliteracy skills and HLEs were freely estimated (see Tables 6a and 6b); the interrelations among the latent constructs are not shown in the figure but are reported in Tables 6a and 6b. * $p < .05$. ** $p < .01$.

2). Because children's age and cognitive ability and parents' education and mothers' acculturation were related to some aspects of the HLEs and/or the preliteracy skills, we treated them as control variables in the model.

The model fit the data reasonably well (see Table 7 for the summary of the *unstandardized* path coefficients B s for the relations between the HLEs and the preliteracy skills): $\chi^2(293) = 394.01$, $p < .01$, RMSEA = .03, SRMR = .05, CFI = .97, NNFI/TLI = .96. For both languages, HLE-parent factors were positively related to children's oral language skills (*standardized* path coefficients β s = .36, .26, $ps < .01$). The English HLE-sibling factor and English home literacy resources were positively associated with children's English oral language skills (β s = .19 and .12, respectively, $ps < .05$). The Spanish HLE-parent factor was positively related to children's Spanish print knowledge ($\beta = .21$, $p < .01$), and the Spanish HLE-sibling factor was positively associated with children's Spanish phonological awareness skills ($\beta = .20$, $p < .01$).⁴ In terms of cross-linguistic relations, the Spanish HLE-parent factor was negatively associated with chil-

dren's English oral language and phonological awareness skills (β s = $-.26$ and $-.22$, respectively, $ps < .01$). There were no significant relations between aspects of the English HLE and children's Spanish preliteracy skills.

⁴ The positive relation between Spanish sibling-child reading and Spanish phonological awareness was unexpected, given the nonsignificant correlations between the two (see Table 5). This was possibly due to suppressor effect of a third variable. Following Cohen and Cohen (1983), we identified a possible suppressor effect of English oral language skills. That is, children's English oral language was negatively (yet nonsignificantly) correlated with Spanish sibling-child reading (see Table 5) and positively correlated with Spanish phonological awareness (see Table 3). Had English oral language been excluded from the model, Spanish sibling-child reading would not be significantly related to Spanish phonological awareness, suggesting that the positive relation between the two might be a statistical artifact. Therefore, we chose not to discuss this "spurious" relation in our Discussion section.

Table 6a
Relations Between Children's Preliteracy Skills in English and Spanish

Language/skill	English			Spanish		
	Print knowledge	Oral language	Phonological awareness	Print knowledge	Oral language	Phonological awareness
English						
Print knowledge	—					
Oral language	.42**	—				
Phonological awareness	.47**	.67**	—			
Spanish						
Print knowledge	.56**	.21**	.29**	—		
Oral language	.29**	.28**	.26**	.37**	—	
Phonological awareness	.32**	.36**	.78**	.48**	.55**	—

Note. The results reported in this table were based on the structural equation model illustrated on the left in Figure 1.
* $p < .05$. ** $p < .01$.

Finally, the results for the control variables show that children's age and cognitive ability were related to most of the preliteracy skills in both languages (β s ranged from .13 to .47, $ps < .05$). Mothers' orientation toward American culture was positively related to English home literacy resources and the English HLE-parent factor ($rs = .37$ and $.49$, respectively, $ps < .01$) and negatively related to the Spanish HLE-parent factor ($r = -.27$, $p < .01$). Mothers' orientation toward Latino culture was positively related to HLE-parent in Spanish ($r = .15$, $p < .05$) and was negatively associated with English home literacy resources ($r = -.18$, $p < .05$). Parents' education was positively related to English home literacy resources and the HLE-parent factor ($rs = .56$ and $.55$, respectively, $ps < .01$), and negatively related to the English HLE-sibling and Spanish HLE-parent factors ($rs = -.23$ and $-.26$, respectively, $ps < .01$).

Discussion

In a recent review of the literature on ELL children's early language and literacy development, Scheffner Hammer, Jia, and Uchikoshi (2011) maintained there is an urgent need to understand home environment factors that influence literacy development among young Latino children. Understanding individual variations in children's literacy skill development can inform policy and can potentially identify struggling children as early as possible. There-

fore, a primary goal of the current study was to determine the extent of children's early literacy skills in both English and Spanish at the beginning of the preschool year to address a fundamental question: What skills do these children bring from their homes to the preschool experience?

Our results showed that the average child arrives at preschool with oral language skills in both Spanish and English that are lower than what is generally expected for non-at-risk, non-ELL children. At the same time, these children have several protective factors that may buffer their risk status: they have working parents, mothers who are gradually adapting to American culture, and older siblings who read to them. Unfortunately, the degree to which their educational risks overshadow the relative strengths they bring to preschool is presently unknown and will be addressed in our longitudinal follow-up.

Relations Between Children's Preliteracy Skills in Spanish and English

The pattern of association among the three preliteracy skills within the two languages is somewhat consistent with prior work on emergent literacy with non-at-risk children (Lonigan et al., 2008; Whitehurst & Lonigan, 1998). The latent constructs for children's oral language, phonological awareness, and print knowledge skills were distinct factors, yet moderately correlated

Table 6b
Relations Between Children's Home Literacy Environments in English and Spanish

Literacy environment	English			Spanish		
	Literacy resources	HLE-parent	HLE-sibling	Literacy resources	HLE-parent	HLE-sibling
English						
Literacy resources	—					
HLE-parent	.47**	—				
HLE-sibling	.23**	.08	—			
Spanish						
Literacy resources	.12	.20*	-.03	—		
HLE-parent	-.21**	.07	-.08	.39**	—	
HLE-sibling	-.10	-.02	-.09	.03	.00	—

Note. The results reported in this table were based on the structural equation model illustrated on the right in Figure 1. HLE = home literacy environments.
* $p < .05$. ** $p < .01$.

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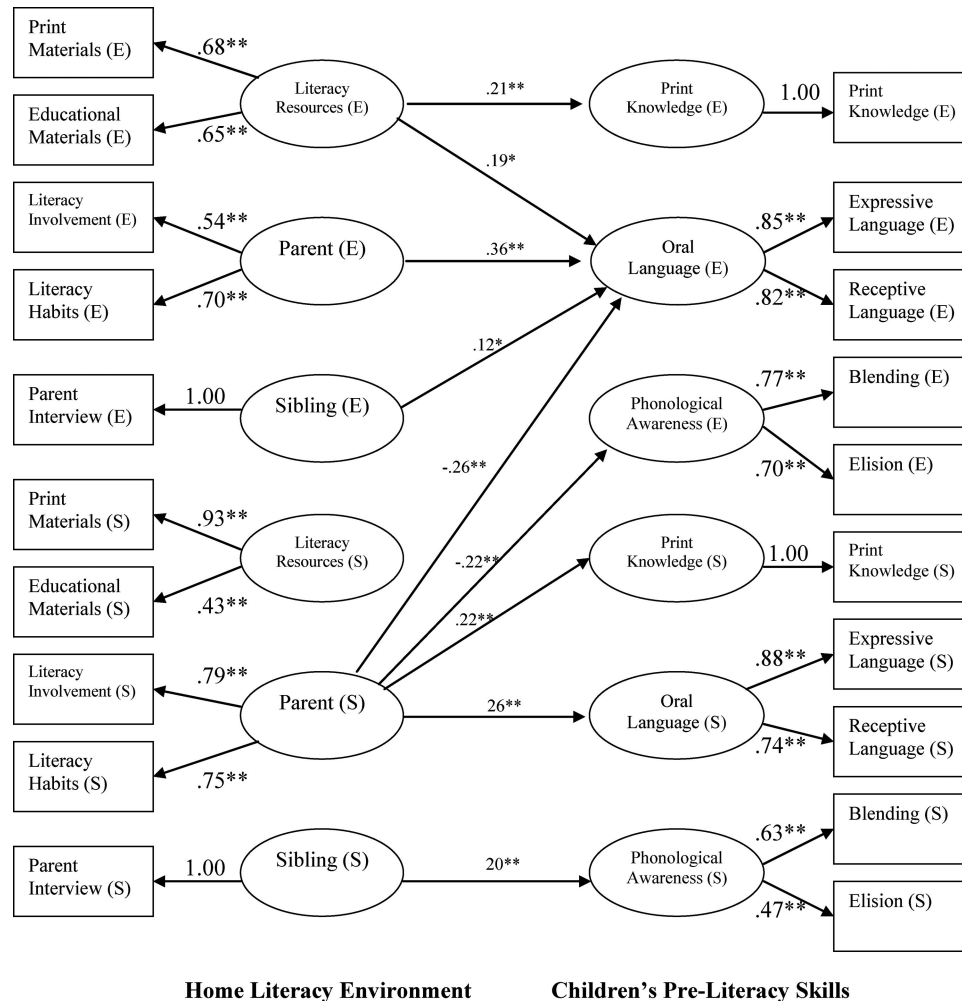


Figure 2. Relations between the home literacy environments and children's preliterate skills in English (E) and Spanish (S), controlling for children's age and cognitive ability, parents' education, and mothers' acculturation. Standardized parameter estimates (β s) were reported; only significant paths were illustrated in the figure (see Table 7 for a summary of all unstandardized path coefficients). Controlled variables included children's age and cognitive abilities, mothers' orientation to American culture and Latino culture, and parents' education. * $p < .05$. ** $p < .01$.

within both languages. Cross-linguistic comparisons showed the three preliterate skills were significantly associated across the two languages. These results are in line with some recent research with Spanish-speaking ELL children suggesting that some preliterate skills "transfer" from one language to another (Leafstedt & Gerber, 2005; Tabors, Pérez, & Lopez, 2003). Transfer in this sense refers to children's ability to simultaneously acquire emergent literacy skills and develop conceptual knowledge about these skills that they can apply to any language they learn subsequently. For example, some studies found children's phonological awareness skills are related both within and across languages (Branum-Martin et al., 2006; Gottardo, 2002; Gottardo & Mueller, 2009; Leafstedt & Gerber, 2005). Atwill, Blanchard, Gorin, and Burstein (2007) found kindergarten children who had strong phonological awareness skills in their L1 had corresponding skills in their L2, whereas Anthony et al. (2009) and others (Dickinson, McCabe,

Clark-Chiarelli, & Wolf, 2004; Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Lopez & Greenfield, 2004; Tabors et al., 2003) reported parallel findings for preschoolers' phonological awareness in their L1 and L2. Print knowledge skills seem to be related across alphabetic languages and may also transfer. Lindsey et al. (2003) reported current and longitudinal correlations ranging from .44 to .66 for measures of print knowledge across Spanish and English for Spanish-speaking kindergarten ELL children. If transfer does take place, it could have important implications for how to teach emergent literacy skills to young ELL children in that the language of instruction may not be as important because children could apply their knowledge about these skills developed initially in their L1 to their L2 on their own. Clearly, transfer may also be dependent on the extent to which young learners' efforts are supported by adults or older children. Longitudinal studies are needed to explicate fully if, how, and when these early literacy

Table 7
Relations Between Home Literacy Environments and Children's Preliteracy Skills in English and Spanish

HLE variable	English preliteracy skill						Spanish preliteracy skill					
	Print knowledge		Oral language		Phonological awareness		Print knowledge		Oral language		Phonological awareness	
	<i>B</i>	CI	<i>B</i>	CI	<i>B</i>	CI	<i>B</i>	CI	<i>B</i>	CI	<i>B</i>	CI
English												
Literacy resources	.19**	[.02, .37]	.16*	[.01, .32]	.12	[-.02, .26]	.16	[-.02, .34]	.16	[-.01, .34]	.11	[-.18, .40]
HLE-parent	.07	[-.09, .23]	.29**	[.13, .45]	.12	[-.02, .26]	.00	[-.18, .18]	-.14	[-.30, .02]	-.09	[-.36, .18]
HLE-sibling	.01	[-.09, .11]	.10*	[.01, .20]	.07	[-.01, .15]	.00	[-.10, .10]	-.01	[-.11, .09]	-.01	[-.19, .17]
Spanish												
Literacy resources	-.04	[-.14, .06]	-.05	[-.15, .05]	-.01	[-.09, .07]	.01	[-.11, .13]	.00	[-.10, .10]	.01	[-.17, .19]
HLE-parent	.04	[-.10, .18]	-.21**	[-.33, -.09]	-.15**	[-.27, -.03]	.22**	[.08, .36]	.20**	[.06, .34]	.10	[-.14, .34]
HLE-sibling	-.03	[-.13, .07]	-.07	[-.17, .03]	.00	[-.08, .08]	.08	[-.02, .18]	.06	[-.04, .16]	.23**	[.05, .41]

Note. The results reported in Table 7 were based on the structural equation model illustrated in Figure 2. *B* = unstandardized path coefficients; CI = 95% confidence intervals; HLE = home literacy environments.

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

skills transfer from one language to another and whether these findings hold for other populations of young ELL children.

The positive relation we found between the latent constructs for children's English and Spanish oral language skills appears to be at odds with some prior findings on the development of oral language in Spanish-speaking ELL children (e.g., Bedore, Peña, García, & Cortez, 2005; Pearson, Fernández, & Oller, 1993). Peña, Bedore, and Zlatić-Guinta (2002) found that only about 30% of 4- to 7-year-old ELL children's vocabulary overlapped in English and Spanish, with the remaining 70% unique to either English or Spanish. A close examination of Tables 3 and 6 suggests, however, that the moderate correlations between children's English and Spanish *receptive* oral language skills may account for the significant relation between the latent constructs of two oral language scores, and coupled with the finding that children's expressive and receptive oral language skills were higher in Spanish than in English, it seems likely that at entry to preschool, children knew more words and concepts in Spanish than in English and that these words and concepts were different from the ones they knew or could express in English.

Relations Between the HLEs in English and Spanish

As might be expected, there were positive within-language correlations between the latent constructs for the HLE-parent factor and families' home literacy resources in English and Spanish. These results correspond to studies showing that parents' ability and inclination to provide home literacy opportunities may be in part related to their access to resources (e.g., Burgess et al. 2002). While these results could imply that the families' HLE activities were primarily language specific, the two cross-linguistic and inversely-related findings for the relation between the HLE-parent factors and the literacy resources in both languages suggest that parents who carried out much of their literacy-related activities in English may also possess and make use of Spanish materials when available, but not vice-versa. On the other hand, it is also possible that some parents engage more in Spanish literacy activities due to their limited access to English literacy resources.

Also noteworthy was that the relation between the home literacy resources and sibling-child reading was significant only for English. While this could be attributed to the lack of Spanish print and educational materials in the home compared with English materials, it is also possible that siblings stepped in as readers when needed. Similar to monolingual, middle-class families where parents seem to engage in most of the shared reading and other activities, Spanish speaking parents may read to their to their children in Spanish; however, older siblings, who may read and speak better English than their parents, help their younger siblings develop literacy skills in English.

The HLEs and Children's Preliteracy Skills in English and Spanish

Within both languages, the HLE-parent factor was positively associated with children's English and Spanish oral language skills. These findings are consistent with the model proposed by Whitehurst and Lonigan (1998), suggesting that home literacy activities may influence development of outside-in domains, such as children's vocabulary and oral language skills in both Spanish and English. On the other hand the language-specific results showing that children's print knowledge skills were associated with their English home literacy resources and parents' literacy behaviors in Spanish are also in line with Whitehurst and Lonigan's (1998) model, suggesting that parents' efforts to teach print-specific skills and to engage in letter- and sound-focused activities and their access to literacy resources may influence print knowledge skills.

The lack of cross-linguistic findings for the relation between the English HLE and children's preliteracy skills in Spanish and the two negative associations between parents' home literacy activities in Spanish and children's English oral language and phonological awareness skills can be interpreted in two ways. The first is the time-on-task hypothesis (Rossell & Baker, 1986); that is, more time on a task leads to greater proficiency on that task. Thus, more time spent in parent-child activities carried out in English rather than Spanish leads to the development of preliteracy skills in

the English language, and more experiences in English may mean less time available for Spanish; as reflected in the negative cross-language associations. Alternatively, literacy-related experiences provided in Spanish could disrupt learning in English. However, this latter explanation does not seem plausible because we found significant cross-linguistic associations among the preliterate skills, and there were modest correlations between the Spanish HLE-parent factor and children's Spanish print knowledge and oral language skills. Our findings seem to reflect a pattern of findings reported in a summary of studies of older children. Although the results of the studies that they reviewed were mixed due to considerable variation in sample sizes, research designs, and measures, Goldenberg, Rueda, and August (2006) tentatively concluded that the relation between home language use and children's literacy outcomes tends to be language specific. Children's home experiences in their L1 and L2 are positively associated with their literacy achievement in their L1 and L2, respectively, and home literacy activities carried out in children's L1 and L2 seem to be negatively correlated with their literacy in the other language. While the implications of our findings remain unclear, they do suggest that the relation between the HLE and children's early literacy skill development begins early and is language dependent. Whether these results hold for other groups of children and remains constant across time is an open question.

From an education standpoint, these results could have implications for children's early language and literacy skill development. Specifically, these results could indicate the beginning of a pattern of *subtractive bilingualism* (Lambert, 1992). Spanish-speaking children in California, for example, are expected to assimilate rather quickly to the mainstream culture. They are (pre)schooled from the beginning in English while their Spanish is gradually replaced, or subtracted out (Lambert, 1992). Compounding the problem is that when children begin schooling in English, their Spanish has not been fully developed, and they do not have experiences to develop it outside the family; this leads to a deficiency in both English and Spanish.

On the other hand, the overall pattern of our SEM findings could also reflect parents' emphasis on the importance of English in getting ahead as adults and for children to do well in school. Regardless of parents' existing skills in English, they reported attempting to formally "teach" early literacy skills in English than in Spanish, providing books and print materials in English, and encouraging older siblings in the family to help with the reading in English. It is also possible that children who were born in the United States but live in Spanish-speaking homes and attend English-speaking preschools are becoming *circumstantial bilinguals* (Kester & Peña, 2002, p. 4); their circumstances require two languages with different vocabulary content for each setting. In the home, their conversations may concern family activities, whereas academic-related discussions are characteristic of their preschool settings. Furthermore, ELL children may have few opportunities to develop preliterate skills in Spanish. Perhaps it is the case that young children have considerable exposure to English from television, from older siblings, and in their neighborhoods, and while they may have with few opportunities to use it, they nevertheless develop their early literacy skills in English because their comprehension skills have been developed.

In any case, most researchers would agree that it is rare for bilinguals to have both languages in balance, as one language

quickly predominates in use and exposure (Bialystok, 2007). We also noted that when assessing children they often initially refused to respond in Spanish although they were Spanish speakers. It was suggested to us by bilingual educators that even young children very quickly learn that they are treated differently at school if they speak in Spanish. Our lack of findings for the Spanish language aspects of the HLE may be an early expression of this behavior and children's skills in Spanish are not adequately measured. This issue warrants further investigation.

Our analyses that involved several important control variables also highlight potential risk and protective factors that may influence the HLE and contexts in which children develop preliterate skills. How parents adapt to the American lifestyle can influence their children's overall developmental functioning, and in particular their literacy skills, by shaping mothers' behaviors, language use with the child, inclination to engage in literacy activities with their children, and structuring of the home learning environment. More specifically, our findings for acculturation showed that an orientation toward American culture was positively associated with the home literacy resources and mothers' involvement in literacy activities, whereas an orientation toward Latino culture was negatively associated with home literacy resources. At the same time, however, and as many studies have shown, acculturation is associated with education level. Educated immigrant parents may be better positioned to help their children achieve academically and to negotiate with teachers and school administrators, whereas parents in the same immigrant group but with limited education may lack experience and knowledge to provide similar support. While it is clear that individual immigrants tend to acculturate differently in their public and private spheres of life, parents' cultural orientations have implications for their family and children. At the same time, we acknowledge that acculturation is a dynamic and multifaceted concept, and existing measures do not fully capture this process. It was not our intention to simplify the concept by using a unidimensional model; however, when these parents' styles have been categorized using an orthogonal model (e.g., Farver, 2010), our findings are quite similar.

In this study, the intent was not to examine children's skills across time, but to examine the skills children initially bring to preschool in their L1 and L2. Therefore, the strength of this report is that we were able to examine Head Start children at the beginning of the year to avoid confounding their preschool experiences and curricula with their early literacy skill development. Our work in progress will examine growth in these skills across the preschool year.

Finally, some limitations should be mentioned. First, we could not make inferences about the direction of effects between the HLE and children's preliterate skills. Mothers' involvement in literacy-related activities and their investment in print materials may be a reflection of their children's interest and developing competency. Future studies should adopt a longitudinal design to assess the HLE and children's emergent literacy skills across time (Scheffner Hammer et al., 2011).

Second, the lack of significant findings for the Spanish HLEs and preliterate skills may be due to our failure to include more salient HLE variables. For instance, the primary individuals who read and teach Spanish at home may not be parents or older siblings, but grandparents or other adults. Therefore, it is important to include contributions of other significant family members in

future studies of HLE in Latino families. Third, it is important to acknowledge the inherent difficulty of determining the language(s) of the home environment and relative use across individuals, situations, and activities with the target child. Parents often are not good informants of such information. Therefore, in our parent interviews, we attempted to help mothers think about the language they use when they interact with their children around literacy activities by asking them directly and providing prompts and so forth. However, in the absence of directly observing the families for a considerable amount of time as they go about their daily activities, we have provided our best estimate. Similarly, parents may inaccurately report their involvement in literacy-related activities, their own literacy habits, and estimates of print and educational material in their homes. To overcome these biases, we cross-validated mothers' estimates of children's letter knowledge with the print knowledge measure ($r = .33, p < .01$), and we observed and tallied families' home literacy resources. Future studies should directly observe the HLE and distinguish shared reading from teaching behaviors.

Fourth, these results may not generalize to other ELL populations: Spanish-speaking children who have had formal opportunities to develop their L1 skills, Spanish-speaking children from middle- and high-income families, or those who live in states where bilingualism is embraced. Moreover, language use patterns in the home are likely to change as children enter public school.

Despite these limitations, the current study has several strengths. We used multiple approaches: standardized assessments, parent reports, interviews, sorting tasks, and home observations to measure children's literacy skills and the HLE, which to some degree controlled for the shared method variance problems. We took into account the unique backgrounds of low-income families of ELL children and assessed mothers' acculturation, a factor that potentially influences children's opportunities for learning. To our knowledge, this study is one of the first to systematically examine the HLE and children's literacy skills in both English and Spanish language and represents an important initial step in understanding the early literacy skills ELL children bring to preschool from experiences in their homes.

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