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The relationship among home language use, parental beliefs, and Spanish-speaking children's vocabulary

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Abstract

This study investigated the relationship among home language use, parents' beliefs about dual language development, and Spanish-speaking children's vocabulary knowledge. Parents ($n = 162$) completed a questionnaire about their home language use and beliefs about dual language development, and elementary-age children ($N = 190$)—Kindergarten ($M_{age} = 5.71$, $SD = .56$), second grade ($M_{age} = 7.52$, $SD = .31$), and fourth grade ($M_{age} = 9.35$, $SD = .45$)—completed conceptually-scored vocabulary assessments. Principal component analyses revealed that Spanish-speaking parents' beliefs about dual language development are heterogeneous. Further, parents' beliefs can be characterized differently according to their children's English proficiency designations and grade levels. Structural equation modeling analyses revealed that the *Bilingual Facility* parental belief factor was associated with home language use practices, which in turn were associated with children's vocabulary. However, this association only applied to limited English proficient students and their parents. These results underscore the importance of attending to Spanish-speaking parents' beliefs, as they appear to relate to home language use practices and, importantly, they also relate to their children's vocabulary achievement.

Keywords

dual language learners; conceptually-scored vocabulary; parental beliefs; home language use

Introduction

Language comprehension is essential for reading (e.g., Gough & Tunmer, 1986), with vocabulary surfacing as a critical component of language comprehension and serving as an established predictor of reading comprehension achievement and overall academic success for monolinguals and multilinguals alike (e.g., Anderson & Freebody, 1981; Mancilla-Martinez & Lesaux, 2017). Furthermore, the role of the home language environment in shaping children's language development in general and vocabulary in particular is well established (Mistry, Benner, Biesanz, Clark, & Howes, 2010; Son & Morrison, 2010; Ziol-Guest & McKenna, 2014). For dual language learners (DLLs) from Spanish-speaking homes in the U.S., numerous factors complicate our understanding of the relationship between the home language environment and children's language outcomes. At the most basic level, it is important to attend to the relative use of Spanish compared to English. At a more nuanced level, attention to parental beliefs about language use in general and dual language use in particular may lend unique insight into the nature of this relationship (Mancilla-Martinez & Lesaux, 2014). While we know that bilingualism itself does not contribute to negative language outcomes (Takanishi & Le Menestrel, 2017), we also know that vocabulary emerges as an area of documented difficulty for school-aged students in the U.S., including Spanish-speaking DLLs (Hoff, 2013, 2018; Ramos & Murphey, 2016). Yet, the relationship among home language practices, parent beliefs about dual language development, and school-aged DLLs' vocabulary outcomes has been under-researched and is the focus of this study.

Home Language Practices and Dual Language Learners' Vocabulary

DLLs' vocabulary has been the focus of many research studies, with the role of home language use practices unsurprisingly emerging as an important factor to consider. Indeed, for all children, language is developed through interactions that vary in quantity and quality, and that also vary depending on the context in which the interactions unfold (De Houwer, 2007; Hoff, 2006, 2010; Hurtado, Marchman, & Fernald, 2008; Rowe, 2012). As such, consideration of quantity and quality, as well as of context, are central to discussions of individual differences in children's vocabulary knowledge (e.g., Mistry et al., 2010; Newman, Rowe, & Bernstein Ratner, 2016; Son & Morrison, 2010). For Spanish-speaking DLLs, the influence of these same factors is more complex given that, by definition, DLLs receive varying amounts of language input in *each* language (Bialystok, 2001; Grosjean, 1982, 1989, 2008; Romaine, 1999). Furthermore, the context of language interactions (i.e., home versus school environment) becomes arguably more important for DLLs as the context can play a role in priming DLLs toward a more monolingual or multilingual language mode (e.g., Bialystok, Luk, Peets, & Yang, 2010). Indeed, patterns of home language use can vary widely. DLLs may communicate predominantly in Spanish, predominantly in English, or may engage in nonreciprocal language use, such that their parents use Spanish while children use English (Dabene & Moore, 1995). It is thus essential to attend to DLLs' home language use practices to gain a more comprehensive understanding of their linguistic environment and potential associations with their subsequent vocabulary development.

Parental Beliefs about Dual Language Development

The importance of including beliefs in developmental and educational research agendas has long been underscored (Pajares, 1992). Studies suggest that parental beliefs act as mediators between knowledge and action in child rearing practices (for a synthesis, see Hirsjärvi, & Perälä-Littunen, 2001), and that parental beliefs are linked with children's educational outcomes through interactions that create variable learning environments for children (e.g., Davis-Kean, 2005; Sigel & McGillicuddy-De Lisi, 2002; Weigel, Martin, & Bennet, 2006). However, it may be that the relationship between beliefs and practice is more complicated than the unilateral mediation model described above. Nespor (1987) asserts that beliefs and practices have a bidirectional "dialectical relationship" (p. 2); that is, practices shape beliefs just as beliefs shape practices. As with any developmental process, the development and expression of parental beliefs do not occur in a vacuum. These beliefs are shaped by cultural language ideology, social norms and standards, and past experiences (De Houwer, 1999; Lee, 2002; Nespor, 1987; Shin, 2005). Further, the child's behaviors can influence parental beliefs and immediate use of parenting strategies (Sigel & McGillicuddy-De Lisi, 2002).

Focusing on parents of DLLs, De Houwer (1999) argues that parents must have positive attitudes toward the languages they want their children to learn, as well as a belief that parents can actively play a role in that dual language development. Additionally, there is evidence connecting parental beliefs about dual language development to language use practices that support home language maintenance (see Shi, 2013). For example, Chinese parents in the U.K. who sent their children to heritage language schools reported a strong belief linking Chinese language to Chinese identity, and valued the language as a means for cultural transmission (Archer, Francis, & Mau, 2010; Francis, Archer, & Mau, 2010). In contrast, Korean families in the U.K. who believed that students would learn English best through total immersion did not enroll their children in heritage language schools (Finch, 2009). Further, parental beliefs have been shown to differ among groups of parents with different language use patterns: among Chinese-English bilingual households, Chinese-dominant parents were more likely than English-dominant parents to report a belief that their children should speak only Chinese at home (Lao, 2004).

Although the number of Spanish-speaking DLLs in the U.S. continues to increase (McFarland et al., 2017), the relationship between their home language environments, parents' beliefs about dual language development, and children's vocabulary outcomes during the formal school years remains unclear. We do know that Spanish-speaking parents of two- to four-year-olds from similar economic and linguistic backgrounds vary substantially in their beliefs about children's general learning, language learning, and dual language learning (Mancilla-Martinez & Lesaux, 2014). At the same time, the researchers found that parents who reported more Spanish compared to English use at home tended to show greater agreement in their responses. Research also suggests that immigrant families across different ethnic groups have a strong desire to maintain their home language, as language is important for maintaining connections with family members, preserving culture, and opening opportunities for professional advancement (e.g., Farruggio, 2010; Pacini-Ketchabaw, Bernhard, & Freire, 2001). Among immigrant parents, attitudes regarding the prestige of their culture and language relate to the home language environment (Gardner

& Lambert, 1972; Lee, Shetgiri, Barina, Tillitski, & Flores, 2015; Li, 2006). For instance, some studies report that Mexican immigrant parents maintain the belief that the school is responsible for teaching English and preparing their children to socialize in American culture, while parents believe they should promote the home language and culture (Adair & Tobin, 2008; Schechter, Sharken-Taboada, & Bayley, 1996). However, other studies report that parents may struggle with feelings of guilt about not supporting English language development enough (Wu, 2005). Anxiety and uncertainty about whether exposure to two languages is harmful to their children's academic success may lead parents to emphasize the use of English (Chumak-Horbatsch, 2008), even though there is ample empirical evidence demonstrating that use of the home languages does not interfere with English language development (e.g., Espinosa, 2008; Thomas & Collier, 2002).

De Houwer (1999) presents several studies examining how parental beliefs shape parental language use strategies, which in turn shape young children's dual language development. However, this line of findings does not account for the bidirectional nature of language interactions. That is, when children modify their language use patterns, it may shape parents' beliefs about and use of language. This may partly explain why, over time, some parents gradually reduce their use of the home language with their children (Lee, 2002; Shin, 2005). Given that DLLs' language use in the home is dynamic and can be expected to change over time (De Houwer, 1999; Mancilla-Martinez & Kieffer, 2010), it is also not surprising that Spanish-speaking DLLs tend to develop more proficiency in English than in Spanish across the school years, particularly in light of the English-only instructional contexts typical in the U.S. (Duursma et al., 2007; Hoff, 2018). If children's language proficiency in Spanish and English changes over the years, it is possible that parents' views on children's dual language use may likewise shift over the course of their children's development. To investigate this, an examination of home language use patterns, parental beliefs, and vocabulary outcomes *across* the formal school-age years is needed.

Vocabulary Measurement among Dual Language Learners

As previously noted, DLLs negotiate more than one language, which leads to distributed vocabulary knowledge across more than one language. Given that language assessments typically only target one language—usually English in U.S. classrooms—Spanish-speaking DLLs' overall vocabulary knowledge tends to be underestimated. Grosjean's seminal work (1989) has long argued against the expectation—based on monolingual norms—that bilinguals have equal proficiency in multiple languages. In fact, unequal proficiency is often the norm for bilinguals (Bialystok, 2001; Bialystok et al., 2010; Grosjean, 1982, 2008; Romaine, 1999). Thus, single-language vocabulary assessments that are normed on monolingual children provide only a partial account of DLLs' vocabulary knowledge (Bedore, Peña, García, & Cortez, 2005; Mancilla-Martinez & Vagh, 2013; Mancilla-Martinez, Greenfader, & Ochoa, 2018; Oller & Eilers, 2002; Pearson, Fernández, & Oller, 1995).

One potential solution to concerns about the vocabulary assessment for DLLs is to use vocabulary measures that apply conceptual scoring, such that the focus is on assessing the number of concepts a child knows, regardless of the lexical label the child gives the concept

(i.e., whether the child labels the object *silla* or *chair*, she is credited with having knowledge of the concept). An established and growing body of research shows that Spanish-speaking DLLs who perform lower than their monolingual peers on single-language vocabulary assessments have more comparable scores to their monolingual peers when conceptually-scored vocabulary measures are used (e.g., Gross, Buac, & Kaushanskaya, 2014; Mancilla-Martinez et al., 2018; Pearson, Fernández, & Oller, 1993; Peña, Bedore, & Kester, 2015). Furthermore, conceptually-scored vocabulary measures have a strong theoretical basis: psycholinguistic research demonstrates DLLs' use of one conceptual system to subserve both languages (Dijkstra & Van Heuven, 2002; Kroll & Stewart, 1994; Pearson et al., 1995). Building on scientific understandings of bilingual language acquisition, we adopt the Revised Hierarchical Model proposed by Kroll and Stewart (1994) to account for vocabulary in children from Spanish-speaking homes instructed in English. This model postulates a centralized conceptual system shared between two languages, such that the asymmetrical strengths of the links between first language, second language, and concepts vary as a function of the fluency levels in the second language. Although devised from adults learning English as a second language, recent work demonstrates its applicability in children (Poarch, Van Hell, & Kroll, 2015; Sheng, Bedore, Peña, Fiestas, 2013). Yet, work to date has not examined the utility of these measures beyond the preschool years. In addition, current research has only utilized adapted monolingual-normed measures to gauge conceptual understanding rather than using measures designed for and normed on Spanish-speaking DLLs. In this study, we measure the conceptual vocabulary of school-age children with assessments designed for and normed on Spanish-speaking DLLs.

In summary, the beliefs parents hold regarding dual language development seem to influence parent language interactions with their children, which in turn influence their children's educational outcomes (Cottone, 2012; Hirsjärvi, & Perälä-Littunen, 2001; Tazouti et al., 2010; Weigel et al., 2006). However, to our knowledge, extant research has not explored the potential link among home language practices, beliefs about dual language development, and elementary-aged children's conceptual vocabulary outcomes specifically, despite the well-documented role of vocabulary for overall academic achievement.

Present Study

This cross-sectional study aimed to extend prior developmental research by examining beliefs about dual language development among Spanish-speaking parents from relatively homogeneous, low-income backgrounds in the U.S. We investigated the relationship among parental beliefs about dual language development, reported home language use practices, and elementary-aged Spanish-speaking DLLs' vocabulary outcomes across various developmental levels and also across a range of school-designated English language proficiency levels. To address vocabulary assessment concerns related to DLLs, receptive and expressive vocabulary were assessed utilizing standardized measures designed for and normed on Spanish-speaking DLLs that apply conceptual scoring. We specifically addressed the following research questions:

1. How can Spanish-speaking parents' beliefs about their elementary-aged children's dual language development be characterized? Does the

characterization vary depending on children's school-designated English proficiency status and grade levels?

2. How are Spanish-speaking parents' beliefs about dual language development, their reported home language use practices, and their children's vocabulary knowledge related? Do results vary depending on children's school-designated English proficiency status and grade levels?

In line with previous research (Mancilla-Martinez & Lesaux, 2014; Lao, 2004), we hypothesized that parent beliefs about dual language development would reveal substantial variation, despite the relative homogeneity of the sample. Further, because DLLs in the U.S. are exposed to English comparatively more than to Spanish, particularly as they progress through the formal school years (Duursma et al., 2007; Hammer, Davison, Lawrence, & Miccio, 2009; Mancilla-Martinez & Kieffer, 2010), we hypothesized that parent beliefs about dual language development would vary depending on children's grade levels. Finally, as Figure 1 shows, we hypothesized both direct and indirect effects (via home language use) of parental beliefs about dual language development on children's vocabulary outcomes (DeHouwer, 1999; Hirsjärvi, & Perälä-Littunen, 2001; Lee, 2002; Shin, 2005).

Methods

Participants

Students ($N = 190$; 54% female) were recruited from three elementary schools in a large urban school district in the Southeastern region of the U.S. Thirty-one percent of the students were in Kindergarten ($M_{age} = 5.71$, $SD = .56$), 31% in second grade ($M_{age} = 7.52$, $SD = .31$), and 38% in fourth grade ($M_{age} = 9.35$, $SD = .45$). All students were from Spanish-speaking homes and 65% of the students were formally classified as limited English proficient (LEP) by the school district based on scores from the WIDA Consortium's Assessing Comprehension and Communication in English State-to-State for English Language Learners (ACCESS for ELLs) administered upon initial entry in the school. LEP students are assessed again annually in the spring to determine continued eligibility. The number of students who participated in the study are displayed in Table 1 by their LEP status and grade levels. Students' parents ($n = 162$) also participated in this study by completing a demographic, beliefs, and language use questionnaire. Based on parents' reports, 89% of the students were born in the U.S. In contrast to their children, nearly all of the parents were foreign-born (95%) and the majority of them (59%) were from Mexico, with the rest from El Salvador (13%), Guatemala (9%), and other Latin American countries (19%). Of the parents who reported their family income level ($n = 98$; 60%), families had an income-to-needs ratio at the poverty level (.98), on average.

Procedure

Recruitment letters were sent home in August 2016 to all students in Kindergarten, second, and fourth grades at the three participating elementary schools. Of those students who returned letters ($N = 266$), 75% indicated that they spoke Spanish at home ($n = 200$), and were thus eligible and consented to participate in the study. Ten students dropped out of the study because they moved schools, leaving an analytic sample of 190 students. Spanish-

English bilingual research assistants were trained to administer the two conceptually-scored vocabulary measures in September. They administered the assessments one-on-one from mid-October to early November.

Parent questionnaires were administered beginning in September as consent letters were returned, spanning through the end of February. Because parental literacy levels were not assumed, trained Spanish-English bilingual research assistants called and gave parents the option of completing the survey over the phone or in person at the school. Only if a parent requested to complete the survey independently was the survey sent home to the parent. Eighty-two percent of consenting parents completed the survey ($n = 162$), and 15% did so independently.

Measures

Conceptually-scored vocabulary.—Two vocabulary assessments were administered to students. The first was the *Receptive One-Word Picture Vocabulary Test-4: Spanish-Bilingual Edition (ROWPVT-4: SBE)*; Martin, 2013a), and the second was the *Expressive One-Word Picture Vocabulary Test-4: Spanish-Bilingual Edition (EOWPVT-4: SBE)*, Martin, 2013b). These vocabulary measures were specifically designed for and normed on Spanish-English bilinguals (ages 2-adulthood) who speak Spanish and English with varying levels of proficiency. The measures utilize conceptual scoring, which focuses on the number of words known, independent of the language (Spanish or English) in which the word is known. In comparison to the traditional vocabulary format of simply counting language-specific words known, research supports this as a more comprehensive measure of Spanish-speaking DLLs' vocabulary performance (Gross et al., 2014; Pearson et al., 1993). Per the administration guidelines, students were administered the expressive assessment prior to the receptive measure. Furthermore, testing begins in Spanish or English, depending on the child's language dominance, which in this study was determined based on parent or teacher report.

Conceptually-scored receptive vocabulary.: The *ROWPVT-4: SBE* (Martin, 2013b) taps children's ability to identify pictured objects, actions, and concepts. As a conceptual measure, children are presented with the target item in Spanish or English (again, depending on the child's language dominance), and missed items are re-administered in the opposite language, allowing for the assessment of their receptive knowledge in either language. Each item displays four pictures. The child is asked which of the four pictures is the target word, then is prompted to point to the correct picture. The publisher reports the median internal consistency reliability coefficient as .95 for the Spanish-bilingual edition of the assessment.

Conceptually-scored expressive vocabulary.: The *EOWPVT-4: SBE* (Martin, 2013a) taps children's ability to label pictured objects, actions, and concepts. Also as a conceptual measure, children are presented with a target picture and are prompted in Spanish or English (again, depending on the child's language dominance) to name the item. Missed items are re-administered in the opposite language, allowing for the assessment of their expressive knowledge in either language. Each item displays a picture and the child is asked "What is this?" or "¿Qué es esto?" As noted, the response is correct whether it is given in Spanish or English. The publisher reports the median internal consistency reliability coefficient as .95.

Parent questionnaire.—A paper parent questionnaire—adapted from a demographic questionnaire generated by the Development of Literacy in Spanish Speakers (DeLSS) research project (<http://www.cal.org/what-we-do/projects/delss>) and prepared in Spanish and English—was administered to collect information on family demographics and home language use. Per parent choice, the questionnaire was administered in Spanish or English. We also asked questions about parent beliefs about dual language development. The parental beliefs portion of the questionnaire was developed by Mancilla-Martinez and Lesaux (2014), drawing on questions from Johnston and Wong’s (2002) survey of childrearing beliefs.

Home language use.: Parents were asked eight questions about their language use in the home. *Language exposure* questions referred to talk directed to the child by the mother, father, other adults in the home, and other children in the home, as applicable. *Language use* questions referred to the talk directed by the child to the mother, father, other adults in the home, and other children in the home, as applicable. Parents rated these questions on a 5-point scale, as follows: 1 = only Spanish, 2 = mostly Spanish, 3 = English and Spanish equally, 4 = mostly English, and 5 = only English. As noted, the home language use scale we used in the current study comes directly from the DeLSS project, and is very widely used in research with Spanish-speaking DLLs.

Parental beliefs about dual language development.: Parents were asked to rate nine statements about their beliefs and values regarding their children’s dual language development. They rated their level of agreement with each statement on a 5-point scale, as follows: 1 = strongly disagree, 2 = somewhat disagree, 3 = unsure, 4 = somewhat agree, and 5 = strongly agree. The statements were all related to children’s dual language development. We intended to measure parents’ beliefs and values in regard to their children’s level of use of their first and second language in the home, as well as their level of proficiency in each language. The specific questions that were asked are displayed in Table 2.

Results

Descriptive Analyses

Parental beliefs.—Table 2 presents the sample means for each of the parental beliefs items. Each item tapped parents’ beliefs about their children’s dual language development. The sample means reveal that, on average, parents tended to agree with the statements, as higher values indicate parents strongly agreed with the statement. At the same time, the standard deviations reveal substantial variation in parents’ average levels of agreement with the statements.

Home language use.—Table 3 displays descriptive statistics of children’s reported home language use patterns. As previously noted, a 5-point scale was used, and higher values indicate that the language exposure/use was mostly in English while lower values indicate that the language exposure/use was mostly in Spanish. Parents reported that the language exposure their children received was more Spanish-dominant ($M = 2.31$, $SD = .78$). The average rating for children’s language use was slightly higher ($M = 2.65$, $SD = 1.00$),

indicating more balance between English and Spanish in children's average language use at home (e.g., a mean of 3 reflects roughly equal amounts of English and Spanish). There was a strong and positive correlation between children's language exposure and use ($r = .73, p < .001$). Thus, in our subsequent statistical analyses, we used the combined home language use variable (averaging language exposure and language use).

Conceptually-scored vocabulary.—Descriptive statistics of children's conceptually-scored vocabulary scores are presented in Table 4. The grand mean for the vocabulary raw scores was 70.46 ($SD = 19.83$; Standard Score $M = 108.14, SD = 13.67$) for expressive and 89.01 ($SD = 23.12$; Standard Score $M = 109.22, SD = 12.97$) for receptive. We used raw scores in the analyses because the assessment does not provide a scaled score that reflects absolute growth. There was a strong positive correlation between conceptually-scored receptive and expressive vocabulary ($r = .63, p < .001$), indicating that students with higher receptive vocabulary scores were also likely to have higher expressive vocabulary scores. Because the two vocabulary measures were highly correlated, we used a composite vocabulary score in subsequent analyses by obtaining the mean of students' receptive and expressive conceptually-scored vocabulary outcomes. From hereon, we will use the term 'vocabulary scores' to refer to the conceptually-scored vocabulary composite. The sample grand mean for the composite vocabulary score was 79.74 ($SD = 19.41$).

Research Question 1: Characterization of Parental Beliefs about Dual Language Development, Attending to English Proficiency Designations and Grade Level

To address our first research question, we conducted a principal component analysis (PCA) on the nine parental beliefs items. PCA allowed us to extract factors from the nine items on the parent questionnaire, which led us to generate more meaningful interpretations of parents' beliefs about dual language development. Based on previous research, we hypothesized that Spanish-speaking parents would hold different beliefs about their children's dual language development and that these beliefs would likely vary by children's English proficiency designations (i.e., the official school designation of children's English proficiency status, which could be Limited English proficient or English proficient) and grade levels. We thus conducted a PCA on the whole sample, and also on different subgroups, to examine the extent to which parental beliefs were shared among parents of Spanish-speaking children with different English proficiency designations and grade levels. Items loaded onto factors more strongly when the PCA was conducted for each subgroup separately, rather than when the PCA was conducted on the whole sample. Further, different patterns emerged by subgroup (i.e., different items loaded onto different factors for our subgroups). The final PCA was conducted on the parents of LEP and non-LEP students separately, and then on the parents of Kindergarten and combined second and fourth grade students separately. We grouped grade levels this way (i.e., Kindergarten and combined second and fourth grade) because our preliminary analysis of the data suggested that second and fourth grade students were more similar to one another than they were to Kindergarten students. Because our sample was grouped by students' English proficiency designations and grade levels, they were not mutually exclusive. For instance, all LEP students and their parents were included in either of the two grade level subgroups. For all PCA models, a three-factor solution was found. Orthogonal varimax rotation was used because there was

no significant correlation among the three factors. Factors with eigenvalues greater than 1.0 were extracted. We interpreted each of the factors that emerged by carefully examining the items that loaded onto it, and named each factor based on these items. The PCA results for all subgroups are presented in Table 5, and we explain each in more detail below.

LEP students.—Columns 2–4 on the top half of Table 5 display the PCA results for LEP students' parents' beliefs about their children's dual language development. Two items loaded onto Factor 1, interpreted to represent *Bilingual Facility*, referring to a belief that DLLs can learn both languages well and know when to use each language appropriately. Three items loaded onto Factor 2, interpreted to represent *Language Separation*, referring to a belief that two languages should not be mixed together in conversation. Finally, two items loaded onto Factor 3, interpreted to represent *Receptive Spanish Use*, referring to a belief that receptive knowledge in Spanish is sufficient in children's dual language development. Items 3 (Adults in the family should use mostly the home language in talking with young children at home) and 7 (Children learn the language of school from siblings and peers rather than from their parents) did not load strongly onto either factor when the .40 threshold was applied. Table 5 displays factor loadings that are above the .40 threshold.

Non-LEP students.—Columns 5–7 on the top half of Table 5 present PCA results for non-LEP students' parents' beliefs about their children's dual language development. Three items loaded onto Factor 1, interpreted to represent *Accurate Language Use*. This factor was not found for the LEP students and was interpreted to refer to a belief that two languages should not be mixed and correct pronunciation is important. Two items loaded onto Factor 2, interpreted to represent *Bilingual Facility*, similar to what was found for LEP students. For both LEP and non-LEP students, the same items loaded onto this factor, which represents a belief that DLLs can naturally learn both languages well and that they know how to use each language appropriately. Finally, three items loaded onto Factor 3, interpreted to represent *Context Influence*, referring to a belief that contextualized use in either language is important.

Kindergarten students.—Columns 2–4 on the bottom half of Table 5 display PCA results for Kindergarten students' parents' beliefs about their children's dual language development. Two items loaded onto Factor 1, interpreted to represent *Bilingual Facility*, similar to both the LEP and non-LEP students' results. Three items loaded onto Factor 2, interpreted to represent *Context Influence*, similar to the results for the non-LEP students. Three items loaded onto Factor 3, which was interpreted to represent *Accurate Language Use*, similar to the results for the non-LEP students. Item 2 (If possible, families should use the school language at home with young children) did not load strongly onto either factor when the .40 threshold was applied.

Second and fourth grade students.—Columns 5–7 on the bottom half of Table 5 display PCA results for the combined second and fourth grade students' parents' beliefs about their children's dual language development. Three items loaded onto Factor 1, interpreted to represent *Language Separation*, similar to results for the LEP students, and two items loaded onto Factor 2, interpreted to represent *Bilingual Facility*, a factor that also

emerged for all other subgroups. Two items loaded onto Factor 3, interpreted to represent *Receptive Spanish Use*, a factor that also emerged for LEP students. As was the case for LEP students, items 3 (Adults in the family should use mostly the home language in talking with young children at home) and 7 (Children learn the language of school from siblings and peers rather than from their parents) did not load strongly onto any factor when the .40 threshold was applied.

Research Question 2: Relationship among Parental Beliefs, Home Language Use, and Children's Vocabulary Knowledge

To answer our second research question, we conducted series of structural equation modeling (SEM) analyses with maximum likelihood accounting for missing data. As with the PCA, we conducted SEM analyses separately for each of our subgroups. As shown in Figure 1, we hypothesized that parental beliefs about dual language development could have both direct and indirect effects on children's conceptually-scored vocabulary knowledge. The SEM analyses were conducted with varying sample sizes (ranging from 59 to 131). Caution is needed in interpreting SEM results with relatively small sample sizes, although simple SEM analyses can produce meaningful results even with small sample sizes (e.g., Wolf, Harrington, Clark, & Miller, 2013); replicating these sets of results with larger samples (e.g., $n = 100 - 200$) is nonetheless warranted.

LEP students.—Figure 2 displays the final fitted SEM for LEP students ($n = 124$) (RMSEA = .075, CFI = .97). One factor from parental beliefs, *Bilingual Facility*—which represents a belief that children can learn two languages simultaneously and naturally—predicted home language use ($B = -.15, p = .014$). The relationship was negative, indicating that parents with higher values on *Bilingual Facility* tended to come from more Spanish-dominant homes, on average. In turn, home language use predicted students' vocabulary ($B = 3.51, p = .009$). Controlling for parental beliefs, students whose parents reported that their home language use was more English-dominant had higher vocabulary scores. However, there was no direct effect of parental beliefs on students' vocabulary. LEP students' grade levels also predicted their vocabulary scores ($B = 7.54, p < .001$).

Non-LEP students.—We conducted the same SEM for non-LEP students ($n = 66$) as we did with LEP students. The model fit the data reasonably well (RMSEA = .096 CFI = .97). However, there was no significant relationship among the three variables of interest for this subgroup of students and parents. The association between home language use and vocabulary was negative and approached significance ($B = -3.76, p = .052$). Only grade level was statistically significant in this model ($B = 10.34, p < .001$).

Kindergarten students.—Figure 3 displays the final fitted SEM for Kindergarten students ($n = 59$) (RMSEA = .00, CFI > .99). As was the case for LEP students, *Bilingual Facility*—which represents a belief that children can learn two languages simultaneously and naturally—predicted their reported home language use ($B = -.22, p = .006$). In other words, parents with high values on *Bilingual Facility* tended to come from more Spanish-dominant homes. There was also a significant relationship between LEP status and home language use ($B = -1.02, p < .001$). LEP students in Kindergarten were more likely to be from

Spanish-dominant homes, on average. The association between home language use and Kindergarten students' vocabulary scores approached significance ($B = 2.31, p = .067$).

Second and fourth grade students.—We ran the same SEM for second and fourth grade students ($n = 131$) as we did with Kindergarteners. The model fit the data well ($RMSEA = .00, CFI > .99$). However, and as with non-LEP students, there was no significant relationship among the three variables of interest (i.e., parental beliefs, home language use, and students' vocabulary). Only LEP status was significant ($B = -11.56, p < .001$). On average, LEP students had lower vocabulary scores compared to their non-LEP peers when other variables were accounted for.

Discussion

This study investigated the relationship among Spanish-speaking parents' beliefs about dual language development, reported home language use practices, and their children's vocabulary knowledge, extending previous research in this area that has largely been concentrated on toddlers and preschoolers and that has not directly examined vocabulary outcomes. Two key findings emerged. As we hypothesized, our first finding was that Spanish-speaking parents' beliefs proved to be notably heterogeneous, varying by their children's English proficiency designations and grade levels. Our second finding partially confirmed our hypothesis as it revealed an indirect effect of parental beliefs about dual language development on children's vocabulary knowledge, such that this relationship was mediated by home language use practices. This pattern also differed by children's school-designated English proficiency and grade levels. We discuss our findings and offer implications for supporting Spanish-speaking DLLs' vocabulary development.

Variability in Parental Beliefs about Dual Language Development

There were distinct differences within and across groups in Spanish-speaking parents' beliefs about their children's dual language development, in line with results from previous research conducted with Spanish-speaking parents and their 2- to 4-year-old children (Mancilla-Martinez & Lesaux, 2014). Our study, however, extended these results to school-aged children from similar backgrounds. Even within a subgroup of parents that share similar demographic characteristics, there was notable diversity in parents' beliefs about dual language development. For instance, among LEP students' parents, three beliefs emerged: a belief that children would be able to learn both languages naturally and simultaneously (*Bilingual Facility*), a belief that two languages should be used separately and should not be mixed (*Language Separation*), and a belief that receptive use of Spanish is sufficient in children's dual language development (*Receptive Spanish Use*). Similar patterns were found for other subgroups. These results suggest that, among a particular subset of Spanish-speaking parents whose children have similar English proficiency designations or grade levels, variation in parental beliefs about dual language development is nonetheless evident.

At the same time, there were also notable between-group differences. There was only one belief that emerged across all subgroups: the items that loaded onto *Bilingual Facility* were exactly the same for all four subgroups. However, the other factors did not emerge for all

subgroups. For instance, although *Receptive Spanish Use* and *Context Influence* had items that overlapped with one another and tended to emphasize the value of using English rather than Spanish, the items that loaded on these factors were not identical. We also underscore that, because our subgroups were not mutually exclusive, the fact that the same factors emerged for both LEP and second/fourth grade students' parents could be due to sample overlap. However, it is worth noting that the order of the factors that were extracted were different for all subgroups, and the size of the factor loadings for each item differed as well. Our findings revealed within and between group differences in Spanish-speaking parents' beliefs about their children's dual language development.

Understanding diversity in parental beliefs about language has important implications, as what parents believe is likely to influence the actual language use practices in the home and language-related materials or activities that are provided to children. For instance, if parents believe that English acquisition is more important than Spanish acquisition, they are likely to provide more opportunities for their children to learn English rather than their home language. In turn, this could limit children's Spanish language development. It is thus imperative that parents are provided with accurate, empirically-based information on dual language development (Espinosa, 2008). However, many of the advantages of being bilingual and proficient in the home language have often been overlooked in the U.S. It seems prudent to ensure that accurate information on dual language development is available to parents of Spanish-speaking DLLs, representing a cost-effective target area for schools to help advance Spanish-speaking DLLs' language skills.

Linking Parental Beliefs, Home Language Use, and Children's Vocabulary Knowledge

Our hypothesis about the possibility of both direct and indirect effects of parental beliefs about dual language development on children's vocabulary outcomes was partially supported (see Figure 1). For LEP and Kindergarten students' parents, *Bilingual Facility* (i.e., a belief that children can learn two languages naturally and simultaneously) emerged as the single factor that was associated with home language use, such that LEP and Kindergarten students' parents who had high values on *Bilingual Facility* tended to come from more Spanish-dominant homes. This finding aligns with previous research on Spanish-speaking parents' beliefs and their reported home language use practices with young (2- to 4-year-old) children (Mancilla-Martinez & Lesaux, 2014). However, the indirect effects of parental beliefs on children's vocabulary via home language were only significant for LEP students. One of the limitations of this study is that we could not explore causality given our cross-sectional design without random assignment. If we assume that parental beliefs about dual language development influence home language use, one possible explanation for this positive relationship might be the following: Spanish-speaking parents who believe their children can learn two languages naturally and simultaneously (i.e., high *Bilingual Facility* value) could think that extensive use of Spanish at home would not interfere with their children's English language development and would keep using the language they are most comfortable with and most proficient in at home (Hoff, 2018; Place & Hoff, 2011). Indeed, recent research that finds exposure to highly proficient speakers supports language development (Hoff, 2018) and suggests parents should indeed be encouraged to use the language(s) they are most proficient in.

Importantly, only LEP students' vocabulary outcomes were more associated with the actual language use and exposure in the home. Those from more English-dominant homes evidenced higher vocabulary scores at the beginning of the school year when their grade levels were controlled for. While a similar trend emerged for Kindergarten students, it did not reach statistical significance. On the one hand, these results could be considered somewhat surprising given that vocabulary was measured using *conceptual* scoring. Duursma and colleagues (2007) suggest that becoming English proficient and maintaining English proficiency does not necessarily require parental use of English in the home. Relatedly, we found no statistically significant correlation between home language use and children's vocabulary scores ($r = .09, p = .24$) for the total sample, indicating that the amount of Spanish or English use in the home is not associated with children's conceptual vocabulary outcomes. On the other hand, our examination of students' responses on the vocabulary measure revealed that the majority of our participants used English to respond, both receptively and expressively. The average percentage of items answered in English was 64% for receptive vocabulary and 75% for expressive vocabulary for the total sample. For LEP students, it was 60% and 70% for receptive and expressive vocabulary, respectively. It remains unclear why many students, including LEPs, preferred to use English compared to Spanish on these conceptually-scored vocabulary measures. Because students did not receive formal literacy instruction in Spanish, perhaps they felt more comfortable completing vocabulary assessments in English. Further, the assessments were conducted in their schools, where English is the language of instruction, and this could have contributed to their English preference when completing the assessments, despite their limited English proficiency. Ultimately, students effectively used English more frequently than Spanish in completing the vocabulary assessments, and this trend could potentially help explain the positive relationship between English-dominant home language environments and students' vocabulary scores.

An important consideration is that our measure of home language use was parents' *reported* exposure and use of language in the home, similar to many other research studies (e.g., De Houwer, 2007; Mancilla-Martinez & Lesaux, 2014, 2017). We did not obtain information on the quantity or quality of the *actual* language use in the home, but quantity and quality of language interactions in the home also help predict children's later language outcomes (Hirsh-Pasek et al., 2015; Rowe, Leech, & Cabrera, 2016). This may help explain why only one parental beliefs factor (i.e., *Bilingual Facility*) was significantly associated with reported home language use. Future research that examines naturalistic language use in the home might shed light on the mechanism between home language use and elementary students' vocabulary outcomes.

Limitations and Future Directions

As with all studies, there were limitations to consider. Because the sample size of the subgroups was relatively small, this study is exploratory. While our results provide important and unique insight into the relationship among Spanish-speaking parents' beliefs about dual language development, their reported home language use practices, and their children's vocabulary knowledge, these findings should be replicated with larger samples. Moreover, we did not use family income data in our analyses because 40% of the parents who

participated in the current study did not provide this information. However, our main findings did not change when we conducted our analyses with those who reported their income. Notwithstanding, future research should examine the relationship between beliefs and language among families representing a range of low, middle, and higher income Spanish-speaking households. In addition, the majority of our parent participants were from Mexico, and it is possible that some of the consistencies in our findings stemmed from parents' shared national and cultural values.

While we were able to investigate the patterns that emerged from parents of children at different grade levels, it was not possible for us to test developmental shifts because we employed a cross-sectional design. Longitudinal studies would be a natural next step to directly examine whether parental beliefs change over time and whether the relationship among these constructs shift as children develop. Lastly and as previously noted, we used a questionnaire that relied on parental reports of language use in the home. Questionnaires represent a valid way to collect data and are a widely used method in research settings to estimate language use in the home (e.g., Duursma et al., 2007; Gonzalez et al., 2017). However, using audio recordings of actual language use in the home could provide additional metrics, such as quantity, quality, and characteristics of children and parents' use of language in the home.

Conclusion

Findings from our study suggest that the relationship between what parents believe about dual language development, their home language use practices, and children's vocabulary outcomes are most salient for students who are still developing English language skills. These results are also suggestive for children at the onset of formal schooling. Specifically, parents of LEP and Kindergarten students (not mutually exclusive) who believed in *Bilingual Facility* tended to be from more Spanish-dominant homes. In addition, use of English in the home was positively related to LEP students' vocabulary outcomes. However, use of Spanish in the home was not negatively associated other subgroups of students' vocabulary outcomes. To our knowledge, this is the first study to examine the relationship among all three constructs among elementary-aged Spanish-speaking DLLs and their families. More studies on this population are warranted to replicate our findings in different contexts with larger samples, and to explore potential developmental differences in the relationship among parental beliefs about dual language development, home language use practices, and children's vocabulary outcomes in more depth. The findings of this study make scientific contributions to the field in that it underscores that parental beliefs about dual language development may represent a promising target area for shaping Spanish-speaking DLLs' home language practices and, ultimately, supporting vocabulary outcomes in this large and growing population of learners.

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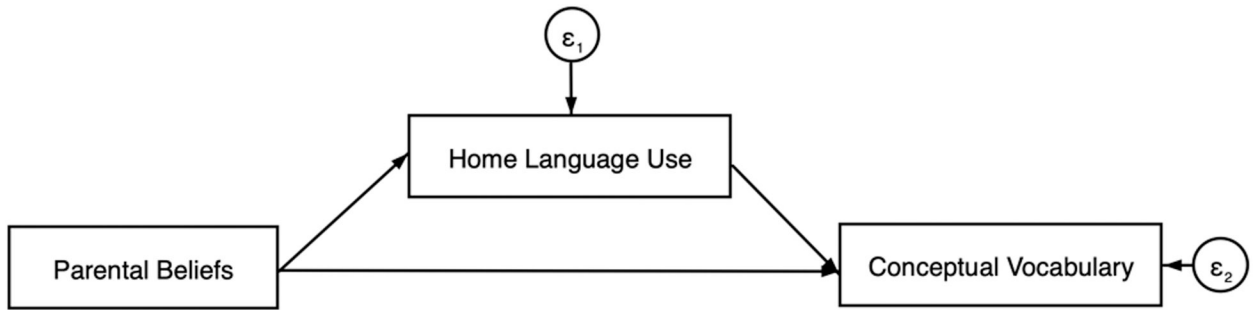


Figure 1.

Hypothesized structural equation model showing the relationship among parental beliefs, home language use practices, and children's vocabulary knowledge. It was hypothesized that parental beliefs about children's dual language development would have both direct and indirect effects on children's conceptually-scored vocabulary through language use practices in the home.

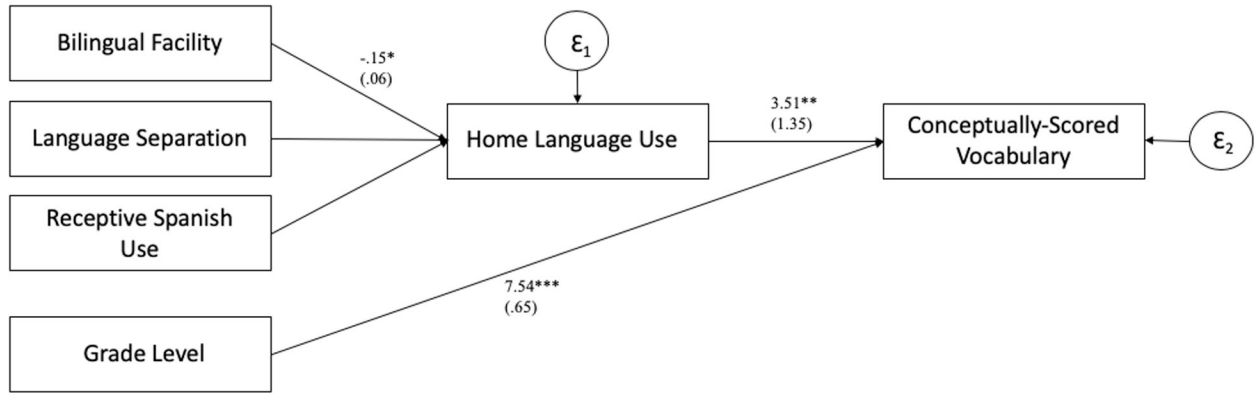


Figure 2. Structural equation modeling results for Limited English Proficient students and their parents ($n = 124$). This model shows that there is a negative relationship between Bilingual Facility and language use practices in the home. In turn, home language use practices are positively associated with Limited English Proficient students' conceptually-scored vocabulary. Standard errors are in parentheses. $p < .05$, $** p < .01$, $*** p < .001$.

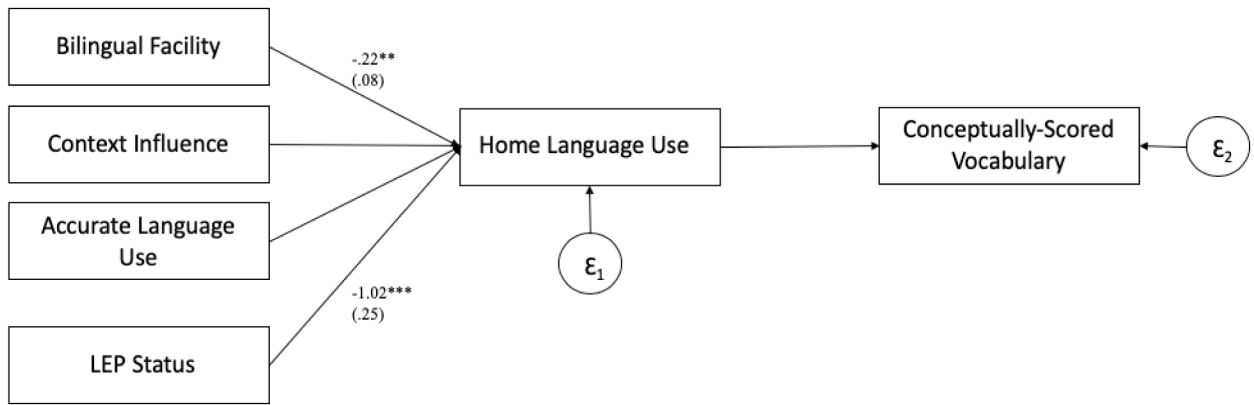


Figure 3. Structural equation modeling results for Kindergarten students and their parents ($n = 59$). This model shows that there is a negative relationship between Bilingual Facility and home language use practices. Standard errors are in parentheses. LEP = Limited English Proficient. $** p < .01$, $*** p < .001$.

Table 1.

Sample demographic characteristics

	Kindergarten (<i>n</i> = 59)	Second grade (<i>n</i> = 59)	Fourth grade (<i>n</i> = 72)	Total(<i>N</i> = 190)
Child Participants				
Language Status				
LEP	40	43	41	124
Non-LEP	19	16	31	66
Birthplace				
United States	44	46	54	144
Mexico	1	2	1	4
Ethnicity				
Latino	53	46	56	155
Parent Participants	54	51	57	162
Birthplace				
United States	3	2	3	8
Mexico	25	32	38	95
El Salvador	8	6	6	21
Guatemala	4	5	5	14
Education				
High School or Less	46	44	49	139
Some Postsecondary Education	1	2	3	6
Bachelor's Degree or Higher	6	4	5	15

Note. LEP = Limited English proficient. Child ethnicity, child birth place, and parental education information come from parent questionnaire. Therefore, the demographic information was only available for students whose parents completed the questionnaire (*n* = 162).

Table 2.

Sample means on the parental beliefs about dual language development questionnaire items, with sample standard deviations

Items	Mean	SD	<i>n</i>
1. Young children who are exposed to two languages will naturally learn both well.	4.57	0.89	161
2. If possible, families should use the school language at home with young children.	3.19	1.55	160
3. Adults in the family should use mostly the home language in talking with young children at home.	4.46	0.93	159
4. Young children can easily keep two languages separate and know which one to use in different situations.	4.44	1.03	160
5. Adults should avoid mixing two languages in conversation with young children.	3.62	1.58	160
6. Children should be corrected when they mix two languages in the same sentence.	3.91	1.50	160
7. Children learn the language of school from siblings and peers rather than from their parents.	4.08	1.37	159
8. It is more important that children be able to understand the home language than to speak it.	3.14	1.69	159
9. Parents should correct children if their pronunciation in the home language sounds "foreign."	3.72	1.56	159

Note. Each statement was rated on a 5-point scale: 1 = strongly disagree, 2 = somewhat disagree, 3 = unsure, 4 = somewhat agree, and 5 = strongly agree.

Table 3.

Patterns of language exposure to child and language use by child with all household members, with Spearman correlation between language exposure and use

	Mean	SD	n	R
Language spoken to child by mother	1.67	0.97	160	0.5
Language child speaks to mother	2.21	1.20	160	
Language spoken to child by father	1.87	1.05	151	0.6
Language child speaks to father	2.29	2.29	151	
Language spoken to child by other adults	2.26	1.23	149	0.6
Language child speaks to other adults	2.54	2.54	151	
Language spoken to child by other children	3.49	1.31	150	0.8
Language child speaks to other children	3.59	3.59	152	
Overall language spoken to child (exposure)	2.31	0.78	162	0.7
Overall language child speaks (use)	2.65	1.00	162	

Note. All correlations were statistically significant at the $p < .001$ level. Parents responded to each question on a 5-point scale: 1 = only Spanish, 2 = mostly Spanish, 3 = English and Spanish equally, 4 = mostly English, 5 = only English.

Sample means on conceptually-scored receptive and expressive vocabulary raw scores by students' English proficiency designation and grade level, with standard deviation

Table 4.

	Kindergarten			Second Grade			Fourth Grade			
	Mean	SD	n	Mean	SD	n	Mean	SD	n	
LEP	Expressive	50.70	11.02	40	69.14	10.49	43	81.29	17.06	41
	Receptive	67.18	14.45	40	90.44	18.02	43	98.59	14.96	41
Non-LEP	Expressive	53.63	10.31	19	71.81	15.50	16	93.10	14.13	31
	Receptive	67.79	10.32	19	92.63	17.07	16	113.68	21.19	31

Note. LEP = Limited English proficient.

Factor loadings for principal components analysis using varimax rotation on the parental beliefs about dual language development questionnaire items by subgroups

Table 5.

Dual Language Development Beliefs Questionnaire Items	LEP Students' Parents (n = 104)			Non-LEP Students' Parents (n = 54)		
	Bilingual Facility	Language Separation	Receptive Spanish Use	Accurate Language Use	Bilingual Facility	Context Influence
1. Young children who are exposed to two languages will naturally learn both well.	0.63		0.81		0.65	
2. If possible, families should use the school language at home with young children.				0.40		
3. Adults in the family should use mostly the home language in talking with young children at home.					0.66	
4. Young children can easily keep two languages separate and know which one to use in different situations.	0.61					0.49
5. Adults should avoid mixing two languages in conversation with young children.		0.58				
6. Children should be corrected when they mix two languages in the same sentence.		0.51		0.62		
7. Children learn the language of school from siblings and peers rather than from their parents.			0.47			0.55
8. It is more important that children be able to understand the home language than to speak it.						0.55
9. Parents should correct children if their pronunciation in the home language sounds "foreign."		0.43		0.51		

Dual Language Development Beliefs Questionnaire Items	Kindergarten Students' Parents (n = 53)			Second and Fourth Graders' Parents (n = 105)		
	Bilingual Facility	Context Influence	Accurate Language Use	Language Separation	Bilingual Facility	Receptive Spanish Use
1. Young children who are exposed to two languages will naturally learn both well.	0.66				0.66	
2. If possible, families should use the school language at home with young children.						0.77
3. Adults in the family should use mostly the home language in talking with young children at home.			0.52			
4. Young children can easily keep two languages separate and know which one to use in different situations.	0.58				0.62	
5. Adults should avoid mixing two languages in conversation with young children.		0.58		0.56		
6. Children should be corrected when they mix two languages in the same sentence.			0.50	0.55		
7. Children learn the language of school from siblings and peers rather than from their parents.		0.55				

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8. It is more important that children be able to understand the home language than to speak it.	0.56	0.46	0.58	0.43
9. Parents should correct children if their pronunciation in the home language sounds "foreign."				

Note. LEP = Limited English proficient. Only the factor loadings that were above .40 threshold are displayed in the table.