

Facilitating Vocabulary Acquisition of Young English Language Learners

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The rapid growth of the Hispanic American population in the United States has become a topic of interest for educators and researchers in recent years. According to the U.S. Census Bureau (2000), nearly 28.2 million people living in the United States speak a language other than English and report Spanish as their other language, with more than 6.8 million of them representing children between the ages of 5 and 17 (U.S. Department of Education, 2001). The National Center for Educational Statistics recently reported that Hispanic children are the largest minority population in the U.S. public school system (2004). In 2001, the number of Spanish-speaking students with limited English proficiency (LEP) exceeded 3.5 million children, with nearly 50% of them receiving English-only language instruction (Kindler, 2001).

Recent federal legislation proposed that every child must become a successful reader by the third grade (No Child Left Behind Act, 2001). However, Spanish-speaking children of migrant or immigrant families may face difficulties or delays in acquiring the emerging

literacy skills and vocabulary knowledge needed to be successful at reading (Diener, Wright, Julian, & Bylington, 2003; Snow, Burns, & Griffin, 1998; Vernon Feagans, Scheffner Hammer, Miccio, & Manlove, 2002). Increased risk factors for children with LEP include poor oral language proficiency, low socioeconomic status, limited access to print in the home, and poor vocabulary knowledge (Diener et al., 2003; Snow et al., 1998; Vernon Feagans et al., 2002).

Vocabulary Knowledge and Literacy

Kindergarten expressive vocabulary knowledge has been proposed as a strong predictor of later reading ability and comprehension in monolingual children (Baker, Simmons, & Kame'enui, 1995; Baumann & Kame'enui, 1991; Becker, 1977; Cunningham & Stanovich, 1998; National Reading Panel, 2000; Paul & O'Rourke, 1988; Scarborough, 1998; Stanovich, 1986; Storch & Whitehurst, 2002). For students with LEP, learning to read in English may pose

ABSTRACT: Purpose: This study examined whether English-only vocabulary instruction or English vocabulary instruction enhanced with Spanish bridging produced greater word learning in young Spanish-speaking children learning English during a storybook reading intervention while considering individual language characteristics.

Method: Twenty-two Spanish-speaking children learning English (ages 4–6) who participated in a summer education program for migrant families were randomly assigned to receive 2 weeks of each instruction: (a) word expansions in English or (b) English readings with word expansions in Spanish. Researcher-created measures of target vocabulary were administered, as were English and Spanish standardized measures of language proficiency and vocabulary.

Results: Results revealed significant improvement in naming, receptive knowledge, and expressive definitions for those children

who received Spanish bridging. Spanish expansions produced the greatest gains in the children's use of expressive definitions. Initial language proficiency in both languages was found to affect participants' gains from intervention, as those with limited skills in both languages showed significantly less vocabulary growth than those with strong skills in Spanish.

Conclusions: Additional benefits to using Spanish expansions in vocabulary instruction were observed. Future research should explore additional ways of enhancing the vocabulary growth of children with limited skills in both languages in order to support and strengthen the child's first language and promote second language acquisition.

KEY WORDS: vocabulary acquisition, bilingual, preschoolers, Spanish

a difficult task if they do not yet have the necessary knowledge of English vocabulary essential for reading comprehension.

Although there is not much related research regarding bilingual populations, this relationship between vocabulary and literacy can also be applied to English language learners (ELLs). Children who make the transition to kindergarten with limited oral language or emergent literacy skills are at greater risk of having academic difficulties (Coyne, Simmons, Kame'enui, & Stoolmiller, 2004; Rimm-Kaufman & Pianta, 2000). Vocabulary difficulties are greatly exacerbated for preschool-age ELLs who have limited knowledge and vocabulary in English and who step into an English-focused instructional environment. Language learning strategies for dual language learners who may be at risk for later reading difficulties are needed to support their vocabulary acquisition and early emergent literacy skills (Coyne, Kame'enui, & Simmons, 2001).

A review of the literature on lexical acquisition of bilingual children was conducted in order to identify potential strategies and supports for language and literacy growth. The lexical acquisition process and its relationship to bilingual children must be considered in examining promising intervention practices.

Models of Dual Language Learning

Several models of word learning for dual language learners emphasize the role and relative importance of the first language, L1, in the acquisition of the second language, L2, suggesting a dynamic relationship between the two languages during dual language learning (Cummins, 1981, 1984; deGroot & Hoeks, 1995; Kroll & Stewart, 1994; Potter, So, von Eckhardt, & Feldman, 1984). The Cummins model proposes a supportive, interdependent relationship between Spanish (L1) and English (L2) for word learning. The premise of a *common underlying proficiency* between two languages is integral to Cummins' model of bilingualism. Based on this common underlying proficiency, the learner uses his or her conceptual understanding of lexical items acquired in L1 as a knowledge base to facilitate L2 acquisition (Cummins, 1981). A dual language learner would be expected to apply his or her experiences and conceptual understanding of L1 when learning lexical items in L2. Based on this premise, the conceptual information about the lexical item is not relearned in English, but merely recoded using the existing knowledge of Spanish. In other words, for ELLs, the underlying conceptual knowledge of the lexical item in Spanish facilitates acquisition of the English word.

The view that L1 serves an important role in supporting conceptual understanding in L2 is also consistent with the word association model (deGroot & Hoeks, 1995; Potter et al., 1984). This model proposes that dual language learners gain access to concepts in L2 through their L1 lexicon. According to this model, during the early stages of dual language learning, English (L2) lexical development is mediated through the child's word knowledge in Spanish (L1). Similar to Cummins' (1981) model, the word association model emphasizes the interplay and positive transfer of knowledge between L1 and L2 in dual language learners.

It has been proposed that the strength of the relationship between L1 and L2 may fluctuate across development based on levels of language proficiency and dominance (Kroll & Stewart, 1994). According to the developmental hypothesis (Kroll & Stewart, 1994), dual language learners would be expected to eventually develop direct links between concepts in each lexicon, transitioning from the word association model to the concept mediation model. Based

on the concept mediation model (Kroll & Stewart, 1994), dual language learners acquire independent links or representations in each language system rather than interdependent conceptual links to lexical items. After studying L2 for more than 2 years, dual language learners become more balanced bilinguals and would not be expected to require bridging from their L1, but instead would demonstrate independent conceptual links in each language.

The transition from one interconnected lexical system to two separate independent systems may be likened to the transition from basic interpersonal communication skills (BICS) to cognitive academic language proficiency (CALP) levels described by Cummins (1981). BICS refers to basic proficiency levels that children use to carry out basic conversations in social contexts. Children are expected to acquire BICS in approximately 2 to 3 years of language use and exposure. CALP refers to later developing language skills used in higher level cognitive tasks such as analytical evaluations, reasoning, and the complex language skills needed for educational settings. Cummins suggests that CALP develops in 5 to 7 years.

Given the proposed reliance on L1 in the first 2–3 years of L2 learning, it is hypothesized that young sequential language learners would benefit from explicit expansions in L1 to promote lexical acquisition in L2. A review of the literature on facilitation of lexical acquisition is provided for examining promising strategies.

Facilitating Vocabulary Acquisition

Explicit explanations of words, such as providing synonyms of words or using role-playing, have been shown to facilitate vocabulary learning in monolingual children, even doubling the number of words they learn (Elley, 1989). Nagy and Herman (1987) previously termed this *elaborated exposure*, in which word exposures are accompanied by rich expansions on meaning or explanations by adults. Poulisse (1997) suggested that children represent and specify L2 vocabulary through experience, in the same way they do for L1. Over time, the bilingual children's vocabulary knowledge in both languages grows with multiple exposures and contexts as they associate additional semantic features with words and begin to recognize how words in one language relate to the corresponding words in the other language.

It has been suggested that vocabulary growth may be evidenced in receptive gains before observable gains in expressive labeling (Barnett, Yarosz, Thomas, Jung, & Blanco, 2007). A discrepancy between receptive and expressive vocabulary growth rates has been commonly reported in monolingual lexical acquisition (Bates, Bretherton, & Snyder, 1988; Benedict, 1979); it has also been reported for dual language learners. Barnett et al. (2007) examined the vocabulary growth of 147 primarily ELL preschool children following 1 year of attendance in Head Start. The children demonstrated significant gains in receptive vocabulary on a standardized measure but did not demonstrate comparable gains in expressive vocabulary. This asymmetry in proficiency levels has also been predicted by the seminal work of Magiste (1979), who described greater initial linguistic crossover from L1 to L2 for receptive tasks than expressive tasks. Production tasks in L2 required more lexical experience to support lexical acquisition.

Vocabulary Bridging During Shared Reading

Based on Cummins' (1984) theoretical premise, the underlying conceptual knowledge of the lexical item in the child's L1 facilitates

acquisition of the word in English for ELLs. Given the notion of common underlying proficiency and the word association model, it is hypothesized that L2 (English) growth would be facilitated through bridging or supporting instruction by providing input in L1 (Spanish). According to the word association model, the technique of bridging would be most beneficial for dual language learners with 2 or fewer years of instruction in English (L2) when lexical items in L2 are still connected with lexical links to their conceptual knowledge in Spanish (L1). The potential usefulness of bridging follows logically from the need to provide comprehensible input during language facilitation (Krashen, 1985). By providing the vocabulary expansions in a comprehensible way, young children would be expected to be able to better use or process the lexical input. However, insufficient research has been conducted on how to best use this strategy with young Spanish-speaking children to prepare them to enter English-speaking classrooms.

Bridging, or embedding Spanish instruction in English language lessons, seems to be a promising way to improve bilingual children's oral language skills in English, as it would incorporate their knowledge of Spanish (L1) in order to bridge to English (L2) (Ryan, 2005; Ulanoff & Pucci, 1999). Although there have been few studies exploring this type of instruction, gains in children's learning have been observed using Spanish expansions when compared to instruction provided completely in English. Perozzi and Chavez Sanchez (1992) compared the rate of receptive acquisition of English prepositions and pronouns of two groups of bilingual first graders, in which one group received additional Spanish instruction before English instruction and the other group did not. Their results showed that children who received the additional Spanish instruction receptively acquired prepositions twice as fast as the English-only group. This is consistent with the Cummins' (1981) model of language interdependence and the word association model.

Shared storybook reading has been proposed as a meaningful, naturalistic context that facilitates vocabulary learning by exposing children to new words, specifically for younger children who are nonreaders, both monolingual and bilingual (Biemiller, 2003; Coyne et al., 2004; Patterson & Pearson, 2004; Roth, 2002). During this type of book reading, an adult reads a story and provides some additional information to help the child understand the context and words in the story (Justice, Meier, & Walpole, 2005).

Further research is needed to determine the effectiveness of strategies to facilitate bridging and word learning in ELLs, especially those of preschool age. Over time, research has shown that repeated storybook readings can be useful in teaching children new words; however, to promote a deep knowledge of new vocabulary, a direct instructional approach may be necessary. Rich, elaborated exposure and direct instruction of words in storybooks using simple Spanish terms may be a promising way to promote greater vocabulary gains in English for children with LEP.

The purpose of the present study was to examine the effects of repeated shared storybook reading with direct instruction relating vocabulary words back to the child's knowledge of Spanish (L1) on the English (L2) vocabulary performance of Spanish-speaking ELLs. This study addressed the following questions:

- Do Spanish-speaking children with LEP benefit more from an English-supplemented-with-Spanish direct vocabulary instruction than an English-only instruction during English shared book reading?

- Do children's initial linguistic characteristics (such as language proficiency or exposure and vocabulary knowledge) in both English and Spanish have an effect on their potential benefit from supplemental Spanish instruction?

METHOD

Participants

Participants were recruited from children enrolled in a summer migrant education program. The program was designed to provide enrichment for children who speak a language other than English at home. This summer program served a Mexican American population in a rural community of northern Florida in which many migrant workers reside. The classroom teachers provided primarily English instruction and were aided by Spanish-English bilingual high school students who were employed by the summer program.

Twenty-nine participants from a larger pool of students were selected for this study. Only those children with LEP between the ages of 4 and 6 were eligible to participate. Of the total of 29 children who were eligible for the study, there were 22 who had complete data sets for the current analyses. The 22 children (11 girls, 11 boys) were between the ages of 49 and 82 months, with a mean age of 62.27 months ($SD = 10$ months). All of the children were from Latino American backgrounds, as indicated by the parents and school records. All of the children were considered Spanish dominant in that they showed superior skills in Spanish and it was the predominant language spoken at home. The children had no identified disabilities or sensory impairments.

Eligibility. To be eligible for the study, the children first had to obtain parent consent. Of the 56 children recruited for the study, 37 had parent consent. All of the children with parent consent were administered the Peabody Picture Vocabulary Test—Third Edition (PPVT—III; Dunn & Dunn, 1997), a measure of single-word receptive vocabulary in English. In order to participate in the study, each child had to obtain a standard score of ≤ 85 on the PPVT—III. This cutoff score was selected for participant eligibility due to the desire to include only children with below-average knowledge of English vocabulary words based on a standardized test. Considering the average range of 85–115 on a normal curve distribution, only children who demonstrated receptive vocabulary scores that were equivalent to at least 1 SD below the mean, a standard score ≤ 85 , were included as participants in the current study. There were 29 children who obtained a standard score of ≤ 85 and were eligible to participate in the study; however, 7 of the children did not have complete data sets. The children with incomplete data sets abandoned the summer program for various reasons and were not administered the researcher-made vocabulary probes or the descriptive measures. There were 22 children with complete data sets of at least 3 weeks of intervention, having completed all of the descriptive measures and the researcher-made vocabulary probes. The mean score on the PPVT—III for these 22 participants was 64.64 ($SD = 13$, range = 40–85). The results of the PPVT—III may be interpreted cautiously, however, due to the potential cultural and linguistic bias of standardized tests designed for native English-speaking populations.

Child and family demographics. The children's parents were contacted by phone for an interview regarding home language use,

language history, country of origin, parental educational level, and literacy exposure in the home. Given the highly migrant nature of the community, some families were unavailable. Research assistants were able to reach 61% of the families by phone after multiple contact attempts were made. The information collected from these families indicated that 93% of the children's families were originally from Mexico, and 7% were from El Salvador. Only 13% of the children were born outside of the United States, and of those, 1 child moved to the United States at the age of 4, and the other at the age of 1;10 (years;months). The number of people living in the children's homes ranged from 3 to 7 ($M = 4.7$). In most families, there were two adults in the home. There were two families with a single adult in the home, one family with three adults in the home, and one family with four adults. Parents' educational levels ranged from 6th grade to 12th grade, with 71% of the parents having reached at least 9th grade or greater.

All of the parents interviewed indicated that their children were learning English in educational settings or with older siblings or cousins, but Spanish was reportedly their home language. One family indicated speaking both Spanish and English at home, and one family indicated speaking Spanish and Mixteco, an indigenous language spoken in regions of Mexico. The parents also reported that at school, 43% of the children spoke primarily English, 50% spoke both Spanish and English, and 7% spoke only Spanish.

Descriptive measures. In order to obtain information about the children's language proficiency and vocabulary knowledge in both English and Spanish, a series of standardized assessments was administered in addition to the measure used for eligibility. These measures were gathered within 1 month of the time of the study. The standardized assessments were used as an index of the children's vocabulary knowledge and as a tool to further describe the children's language knowledge rather than as diagnostic tools. The norm-referenced tests used as part of this study were not used for diagnostic purposes given the limitations of such tests for dual language learners (Kester & Peña, 2002; Valdes & Figueroa, 1994).

The Test de Vocabulario en Imágenes Peabody (TVIP; Dunn, Lugo, Padilla, & Dunn, 1986) was administered to assess the children's single-word receptive vocabulary in Spanish. Although the TVIP does not include bilingual children in its norming sample, its authors suggest that it is appropriate for measuring vocabulary growth in bilinguals. It has also been used in previous intervention studies in quantifying Spanish vocabulary growth in bilingual children (Barnett et al., 2007). The mean standard score obtained by the children in the study on the TVIP was 89 ($SD = 17$, range = 68–124). Caution should be exercised in interpreting these scores, as U.S. language-minority students tend to demonstrate lower average scores and more varied performance on Spanish tests than children residing in Spanish-speaking countries.

The Expressive One-Word Picture Vocabulary Test—Spanish–Bilingual Edition (EOWPVT–SBE; Brownell, 2000) was administered to assess the children's combined expressive vocabulary in both English and Spanish. The mean standard score obtained by the children in the study on this test was 95 ($SD = 19$, range = 61–127). The Preschool Language Assessment Scale (Spanish) (Pre-LAS 2000 [Spanish]; De Avila & Duncan, 1998) was administered to screen the children's basic proficiency in Spanish. The Preschool Language Assessment Scale (English) (Pre-LAS 2000 [English]; Duncan & De Avila, 1998) was administered to screen the children's basic English language proficiency.

The Pre-LAS English (first published in 1985 and revised in 1998) was designed to assess language proficiency in children ages 4–6 years from families whose L1 is not English. The normative sample for the test included 960 children from preschool to first grade. One quarter of the normative sample came from English-speaking homes (26%), nearly half came from Spanish-speaking homes (42%), and the remaining reported other languages spoken at home. According to the technical manual, statistical criteria for item selection included level of difficulty ($p > .90$), interitem correlation ($r > .35$), intersubscale reliability ($\alpha > .90$), age appropriateness, and cultural and gender bias. Subtests consist of expressive and receptive language tasks including following oral directions (Simon Says), labeling tasks, understanding questions, and using grammatical forms through sentence imitation and story retelling. An optional preliteracy subscale for 5-year-olds is also available but was not used in the current study due to the fact that several participants were under this age.

The Pre-LAS Spanish has many similarities to the English version. The Pre-LAS Spanish consists of the same expressive and receptive language subtests using the same tasks. Additionally, the same item selection procedures were employed in test development. The Pre-LAS Spanish is not a translation of the English version as it uses completely different items. The normative sample consisted of 400 Spanish-speaking children, half of whom were from the United States and commonwealth and nearly half residing in Latin America. In the normative data, there were differences in performance between the language-minority children in the United States and the Latin American children on all oral subtests. The Latin American children demonstrated higher overall scores and the U.S. children showed more variability in performance.

On the Pre-LAS English, a proficiency level is assigned given cutoff scores based on the child's cumulative score and age. For example, a 4-year-old who achieves a score of 57–66 would be assigned a proficiency level of 2, whereas a 5-year-old would need to demonstrate a score of 62–71 to be assigned a proficiency level of 2. According to the test manual, a proficiency level of 1 may be interpreted as a non-English speaker, a proficiency level of 2 or 3 is interpreted as a limited English speaker, and a level 4 or 5 reflects fluent proficient English speakers. The same scoring criteria apply for the Pre-LAS Spanish. For inclusion in our study, we chose a cutoff score of ≤ 3 on the Pre-LAS English due to the desire to study children who were dual language learners with LEP. The average Oral Language Proficiency score for study participants on the Pre-LAS Spanish was 3 ($SD = 1.4$, range = 1–5). The average Oral Language Proficiency score on the Pre-LAS English was 1.5 ($SD = .74$, range = 1–3).

Oral language proficiency. All of the children in our study had been exposed to both English and Spanish but demonstrated low proficiency in English and appeared to be dominant in Spanish. Participants were subdivided into two groups based on their scores on the Pre-LAS Spanish and English: high Spanish score with a low English score (HS–LE), and low score in both Spanish and English (LS–LE). A predominantly English-speaking group was not included in the study because the focus of the investigation was to identify children with limited English vocabulary. The children in the HS–LE group achieved Pre-LAS Spanish scores of 4 or 5 and Pre-LAS English scores of ≤ 3 . The children who performed poorly on both the English and Spanish Pre-LAS, with scores of ≤ 3 , were grouped in the LS–LE category. There were 9 children in the HS–LE group and 13 in the LS–LE group.

Procedure

The intervention consisted of shared storybook reading sessions in English with explicit vocabulary instruction for 15–20 min a day. These readings were repeated 3 days a week with the same book and target vocabulary throughout the week (Elley, 1989). Four children's storybooks were used for the vocabulary instruction, for a total of 4 weeks of intervention. A list of these books can be found in Appendix A. Each child received English-only vocabulary expansions with two books and supplemental Spanish vocabulary expansions with two other books. These vocabulary expansions were provided within the context of the book readings so that, at times, the interventionist code switched between English and Spanish within the book reading. There were some children who did not obtain consent until after the first week of intervention, so they were included in three of the week-long interventions instead of four.

The vocabulary words were explained in the target language at the point in which they occurred in the books (Brett, Rothlein, & Hurley, 1996; Elley, 1989; Justice et al. 2005; Penno, Wilkinson, & Moore, 2002). The first time a target word appeared in a book, the children were asked to repeat the word to increase the saliency of the target vocabulary words using the prompts "Say, ____" or "Repeat, ____." The storybooks were modified so that each target word appeared three times in the story. Each time the word appeared in the story, a different semantic feature of the word meaning was given. For example, on the first exposure to *gardener*, the adult asked the child to repeat the word. Then, the adult stated that gardeners "are people who work in gardens and make them pretty." On the second occurrence of the word *gardener*, the adult explained that gardeners "plant trees and flowers with soil and dirt." Finally, on the third and last occurrence, the adult further explained the meaning of gardener by saying that "sometimes gardeners use trucks and wheelbarrows to carry the plants and dirt they use." In the Spanish condition, a similar procedure was followed. The only difference between the two conditions was the language in which the semantic features were provided. The books were always read in English and the target vocabulary words were always named in English.

Book readings. During each reading session, the primary researcher invited 2–3 children at a time to participate and asked them if they wanted to hear a story. The children were brought to a quiet hallway or the school library and were instructed to sit down. The interventionist introduced the book by saying "Today we are going to read a book called ____." The interventionist then proceeded to read the storybook out loud following the modified scripted text until a target word was reached. When a target word first occurred in the text, the interventionist pointed to the picture that depicted the target word and asked the children to repeat the word. Then, the interventionist followed a script that defined and expanded on the word meaning in the target language while maintaining the book position for children to see the illustrations. Once the book reading was completed, the interventionist returned the children to their classrooms. During the readings, the interventionist did not provide any additional information to the children other than the script of the book readings. Comments related to behavior management issues were used as needed to redirect the children's attention back to the task (i.e., "Sit down please," or "Escucha por favor").

Book and language assignment. A counterbalanced procedure was used to randomly assign participants to receive vocabulary instruction with all of the books. The participants were also counterbalanced in assignment to English or Spanish instruction conditions.

This procedure was used to control for differences between individual book characteristics and the language of instruction used for each book. After the children were assigned to their randomized order of books and language of intervention, they were randomly selected to participate in small reading groups of 2 to 3 children.

Research assistants. Research assistants were graduate students in speech-language pathology at Florida State University or trained Spanish–English bilingual community volunteers. The English assessments were administered by native English speakers and by Spanish–English bilinguals with spoken English proficiency. Native Spanish speakers and trained English–Spanish bilinguals administered the Spanish assessments. As part of their training, the research assistants were required to read the administration instructions for each of the assessments and were observed during at least two administrations by the primary researchers to ensure they followed the prescribed directions. Whenever necessary, the research assistants were required to administer the assessments to the primary researcher to ensure procedural fidelity.

Dependent Measures: Researcher-Made Vocabulary Assessments

Two informal researcher-made vocabulary probes were developed and administered in order to assess the children's expressive and receptive knowledge of the target vocabulary words before and after the intervention. These assessments, testing procedures, and scoring procedures are described below.

Expressive vocabulary probe. The expressive probe consisted of two parts: an English naming portion and an expressive definition. The naming portion required the child to label the picture in English. The child was presented with a picture and was asked to label it with the prompt, "What is this?" If the child provided a label in Spanish, he or she was encouraged to label the picture in English. Then, in the expressive definition portion, the child was asked to define each word with the probe, "Tell me something you know about ____" or "Dime algo que sabes sobre ____." Each child was encouraged to provide an additional feature of the word with the probe, "Tell me something else about ____" or "Dime otra cosa sobre ____." The pictures used for these tasks were scanned directly from the storybooks that would be targeted in the intervention.

Receptive vocabulary probe. The receptive probe consisted of presenting the child with three pictures the child had not seen before that were similar in size, color, and quality of illustration. The child was asked to identify the picture of the word being said, following the general format of the PPVT—III. The research assistants used the prompts "Show me ____" or "Enséñame ____," and the child was asked to point to the picture of the requested item.

Testing procedure. The assessments were administered in a hallway of the school or in the library by the primary researcher or a trained bilingual research assistant. Both the expressive and receptive probes were administered in their entirety before the intervention phase began. At the end of each week, the children were administered a shortened version of both probes that assessed the words they had targeted that week. The expressive probe was always administered before the receptive probe to ensure that the children generated their own definitions and were not exposed to the words beforehand. The expressive definition and receptive vocabulary probes were administered in English. The target words were never provided in Spanish. At times, directions were provided in Spanish to

ensure that the child comprehended the task (i.e., “Enseñame” or “Dime qué sabes sobre eso”).

Scoring procedure. The expressive probe scores were divided into two categories: naming in English and expressive definition. The naming in English portion was scored by tallying the number of words the child was able to independently identify in English, with a total possible score of 20 (10 words in each condition). The expressive definition portion was scored using a conceptual scoring scheme adapted from Bedore, Peña, Garcia, and Cortex (2005) and Justice et al. (2005). This scoring scheme was selected because it allowed the child to respond in either language, Spanish or English. The child’s responses were scored based on their expression of the conceptual definition and were not penalized by their limited skills in one language versus another. The scoring scheme had four categories: *no knowledge*, *emergent knowledge*, *partial/incomplete knowledge*, and *complete knowledge*. Each child received a score of 0–3 on each word, and the sum of these scores was used for the analyses. The total possible score for the expressive definitions was 60 points (3 points for each of the 20 words). A detailed description of the scoring scheme is available in Appendix B. The receptive probe was scored by tallying the number of items the child identified correctly, with a possible score of 20 (10 words in each condition). The investigator and a trained research assistant independently scored each of the probes and then met and resolved any discrepancies in the scores. Initial interrater reliability was > 80%.

Reliability

Six 15-min book reading sessions were videotaped to ensure procedural fidelity. These videotapes were reviewed by the primary researcher to ensure that the following steps were completed during each intervention session: (a) the correct group of children was called to story time based on group assignment, (b) the children were welcomed to story time, (c) each child was positioned in a way that he or she could easily see the book, (d) only the scripted text was read during each session, and (e) each child’s behavior did not interfere with other children’s access to listening to the story and looking at the book. During the videotaped sessions, the interventionist followed the scripted text in the books 99% of the time (119 out of 120 opportunities).

RESULTS

The primary purpose of this investigation was to determine the effect of a vocabulary intervention on young children with LEP when presented with English or Spanish vocabulary expansions during repeated shared storybook reading. Three dependent variables were used to measure the children’s vocabulary growth of the target words: (a) English naming, (b) expressive definitions, and (c) receptive vocabulary. The extent to which the children’s initial language proficiency affected their benefit from the intervention also was examined.

Mixed analyses of variance (ANOVAs) were calculated on each of the three dependent measures of vocabulary growth. Each of the 2 × 2 × 2 ANOVAs contained two within-subject factors: time (pre and post) and the language of intervention (Spanish and English), and one between-subjects factor (initial language proficiency). The results showed no significant interactions between the three factors

on all three dependent measures. However, a significant interaction was observed between the language of instruction and the expressive definitions. Also, results showed significant interactions between initial language proficiency and overall growth on all three dependent measures. There were significant differences between the children’s pretest and posttest scores on all three vocabulary measures.

Descriptive Data

Repeated and nonrepeated measures of expressive and receptive language were used to describe the participants’ vocabulary skills. Participant means on nonrepeated measures by language proficiency group are presented in Table 1.

The covariance between participants’ performance on researcher-made vocabulary probes and standardized measures was examined. All scores on standardized measures were converted to standard scores. Pearson product–moment correlation coefficients between the posttest researcher-made probe scores and corresponding standardized scores were computed to examine the strength of the association between researcher-made probes and standardized measures. Table 2 demonstrates the correlation coefficients for each test pair. The results showed a strong positive correlation between the naming task and the Pre-LAS English. If the children had low scores on the Pre-LAS English ($M = 1.5$; $SD = .74$), then their scores on the naming task were also low ($M = 3.55$; $SD = 3.40$), so they were less likely to make gains in expressive naming of novel English words. The naming task also showed a moderate positive correlation to the EOWPVT–SBE, TVIP, PPVT–III, and Pre-LAS Spanish. These relationships demonstrate that the participant’s individual language characteristics in terms of expressive and receptive vocabulary knowledge and Spanish proficiency were related to how much their naming scores increased. The receptive probe showed moderate positive correlations with the EOWPVT–SBE, TVIP, PPVT–III, Pre-LAS Spanish, and Pre-LAS English. Also, the expressive definitions probe resulted in a moderate positive

Table 1. Descriptive vocabulary and language proficiency measures by proficiency group.

Descriptive measure	HS–LE group		LS–LE group	
	Mean	SD	Mean	SD
Expressive bilingual vocabulary ^a	106.56	14.12	86.85	18.21
Receptive English vocabulary ^a	69.33	14.34	61.38	12.23
Receptive Spanish vocabulary ^a	101.33	14.98	81.15	12.17
Language proficiency level—Spanish ^b	4.55	0.5	1.92	0.95
Language proficiency level—English ^b	1.89	0.93	1.23	0.44

Note. HS–LE = high Spanish and low English ($n = 9$), LS–LE = low score in both Spanish and English ($n = 13$).

^aExpressive bilingual vocabulary, receptive English vocabulary, and receptive Spanish vocabulary reflect standard scores on the Expressive One-Word Picture Vocabulary Test—Spanish–Bilingual Edition (EOWPVT–SBE; Brownell, 2000), the Peabody Picture Vocabulary Test—Third Edition (PPVT–III; Dunn & Dunn, 1997), and the Test de Vocabulario en Imágenes Peabody (TVIP; Dunn, Lugo, Padilla, & Dunn, 1986), respectively.

^bLanguage proficiency levels reflect proficiency scores obtained on the Spanish and English editions of the Pre-School Language Assessment Scale (Pre-LAS Spanish; De Avila & Duncan, 1998 and Pre-LAS English; Duncan & De Avila, 1998), respectively.

Table 2. Correlation coefficients for researcher-made probes and standardized measures.

	<i>Naming</i>	<i>Definition</i>	<i>Receptive</i>	<i>EOWPVT</i>	<i>TVIP</i>	<i>PPVT</i>	<i>Pre-LAS Spanish</i>
Expressive Definition	.786**						
Receptive	.724**	.654**					
EOWPVT-SBE	.477*	.524*	.713**				
TVIP	.435*	.579**	.457*	.580**			
PPVT-III	.551**	.370	.491*	.413	.369		
Pre-LAS Spanish	.437*	.641**	.646**	.643**	.660**	.325	
Pre-LAS English	.832**	.754**	.612**	.439*	.609**	.552**	.325

*significant at the 0.05 level (2-tailed); **significant at the 0.01 level (2-tailed).

correlation with the EOWPVT-SBE, TVIP, Pre-LAS Spanish, and Pre-LAS English. These relationships between the expressive and receptive probes with the standardized measures may illustrate how individual participant characteristics were related to their knowledge of the targeted vocabulary following intervention.

Time, Language of Instruction, and Initial Language Proficiency

The mixed ANOVAs resulted in nonsignificant interactions between time, language of instruction, and language proficiency groups on all of the dependent variables: naming ($p = .97$), expressive definitions ($p = .79$), and receptive ($p = .13$). Table 3 presents a descriptive summary of each language proficiency group's scores on the three dependent measures of vocabulary for the Spanish and English instruction conditions. Although there were no differential effects between the three factors, results showed significant two-way interactions between time and language of instruction and between time and initial proficiency.

Language of Instruction

Pre- and posttest scores on all three measures (naming, expressive definitions, and receptive vocabulary) were compared for each of the languages of vocabulary instruction. The average growth for each of the dependent measures by language of instruction is presented in Table 4.

A repeated-measures ANOVA was conducted to determine the effect of the language of vocabulary instruction (English or Spanish) on each of the three dependent variables. A significant interaction was observed between the language of instruction and changes in pre- and posttest expressive definition scores, $F(1, 20) = 5.77$, $p = .026$, $\eta^2 = .224$, observed power = .63. When instruction was

Table 3. Average growth scores for dependent variables across all participants ($N = 22$).

<i>Dependent variable</i>	<i>Pretest</i>		<i>Posttest</i>		<i>Difference</i>	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Naming	1.73	1.49	3.55	3.40	1.82	2.50
Expressive Definition	6.27	4.65	11.14	6.44	4.86	4.06
Receptive	9.73	2.76	15.50	3.42	5.77	2.93

provided in Spanish, the expressive definition scores were significantly higher than when it was provided in English (Figure 1). Participants demonstrated greater growth in their expressive definition knowledge when instructional expansions of English words were provided in Spanish during repeated shared book readings. In other words, children showed improved ability to define targeted English words when the definitions and explanations of the word meanings were taught in their L1, Spanish.

There were no significant interactions between language of instruction and naming, $F(1, 20) = 3.72$, $p = .07$, $\eta^2 = .16$, observed power = .45, or language of instruction and receptive vocabulary, $F(1, 20) = .064$, $p = .803$, $\eta^2 = .003$, observed power = .06. Participants performed similarly on pre- and posttest measures of naming and receptive vocabulary in both treatment conditions.

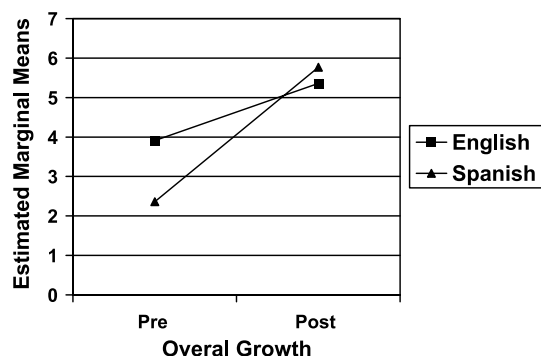
Initial Language Proficiency

Vocabulary growth scores were also compared between groups who differed in their language proficiency scores: HS-LE and LS-LE. Table 5 reports the average growth for the three dependent measures by language proficiency group.

Table 4. Summary of scores on dependent measures by language of instruction.

	<i>HS-LE group</i>		<i>LS-LE group</i>	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Naming				
Spanish Tx-Pre	.67	.87	.69	1.03
Spanish Tx-Post	2.44	2.19	1.38	1.61
English Tx-Pre	1.00	1.12	1.08	.95
English Tx-Post	2.33	2.12	1.31	1.18
Expressive Definition				
Spanish Tx-Pre	3.22	1.64	1.77	1.88
Spanish Tx-Post	8.00	2.96	4.23	3.06
English Tx-Pre	5.00	3.67	3.15	2.58
English Tx-Post	7.56	3.21	3.84	3.41
Receptive				
Spanish Tx-Pre	5.11	1.83	4.46	2.02
Spanish Tx-Post	8.44	1.02	7.31	2.29
English Tx-Pre	4.67	1.80	5.23	2.01
English Tx-Post	8.88	1.09	7.00	2.08

Figure 1. Interaction between expressive definition growth and language of instruction. When instruction was provided in Spanish, greater growth was observed than when instruction was provided in English.



A repeated-measures ANOVA with initial language proficiency as a between-subjects factor yielded significant interactions between proficiency and vocabulary gains in naming, $\Lambda = .806$, $F(1, 20) = 4.81$, $p = .04$, $\eta^2 = .19$, with an observed power of .55; expressive definitions, $\Lambda = .732$, $F(1, 20) = 7.32$, $p = .014$, $\eta^2 = .27$, with an observed power of .73; and receptive vocabulary, $\Lambda = .763$, $F(1, 20) = 6.2$, $p = .022$, $\eta^2 = .24$, with an observed power of .67. The children in the HS-LE group had significantly greater gains than those in the LS-LE group. Figure 2 illustrates these gains across all three dependent measures for each proficiency group. Both groups had similar scores at the pretest on naming and receptive vocabulary. The HS-LE group had higher pretest scores than the LS-LE group on expressive definitions. Univariate comparisons revealed that this initial difference in expressive definition pretest scores was not statistically significant ($p = .101$).

Overall Growth

Comparison between pre- and posttest scores on the researcher-made vocabulary probe results across both English and Spanish conditions yielded improvement in naming, $F(1, 20) = 16.36$, $p = .001$, $\eta^2 = .45$, with an observed power of .97; receptive vocabulary, $F(1, 20) = 112.67$, $p < .001$, $\eta^2 = .85$, with an observed power of 1.0; and expressive definitions, $F(1, 20) = 46.11$, $p < .001$, $\eta^2 = .70$, with an observed power of 1.0. Table 6 presents the pre- and posttest scores for each dependent variable across all participants

Table 5. Average growth for dependent variables by language of instruction for all participants ($N = 22$).

Dependent variable	Spanish instruction		English instruction	
	M	SD	M	SD
Naming	1.14	1.52	.68	1.17
Expressive Definition	3.41	3.10*	3.0	2.71
Receptive	3.05	1.76	2.73	2.27

* $p < .05$.

on all of the targeted vocabulary words in both treatment conditions, which was a total of 20 words. The participants gained an average of 1.82 points on the naming task, meaning they were able to name 1 to 2 more words in English after explicit vocabulary instruction. They also gained an average of 5.77 points on the receptive task, so they were able to recognize 5 to 6 more words at posttest when provided with three pictures and a target stimulus word. Participants' scores on the expressive definition task increased by an average of 4.86 points out of 60 possible points (3 points per word), meaning they were able to expressively define 1 to 2 more words at posttest, or were able to partially explain 3 to 5 new words.

DISCUSSION

This study examined the effect of vocabulary instruction embedded into shared book reading on the word learning of children with LEP. The results will be discussed in terms of key findings, limitations, clinical relevance, and recommendations for future research.

Key Findings

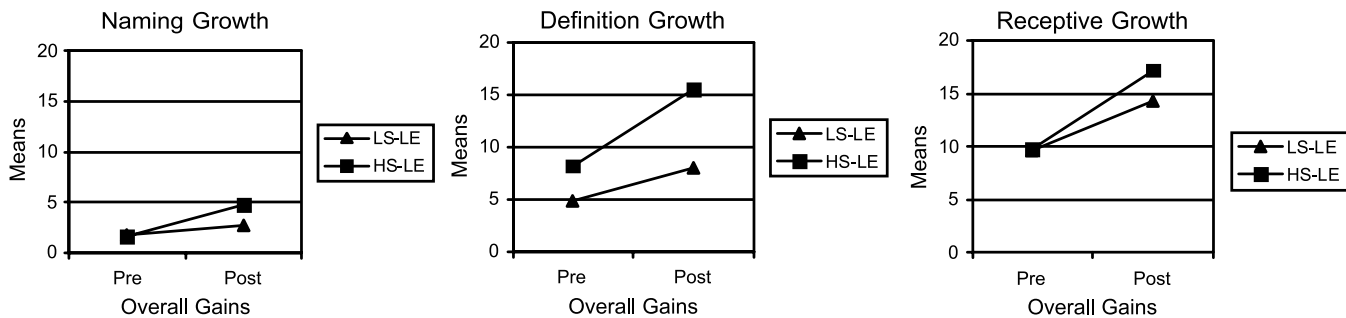
This study sought to answer two questions: (a) Do Spanish-speaking children with LEP benefit more from an English-supplemented-with-Spanish direct vocabulary instruction than an English-only instruction during English shared book reading? and (b) Do the children's initial linguistic characteristics (such as language proficiency or exposure and vocabulary knowledge) in both English and Spanish have an effect on their potential benefit from supplemental Spanish instruction?

Language of intervention. The findings of the current study are consistent with the word association model and Cummin's (1984) notion of common underlying proficiency, which suggests a positive transfer of knowledge between L1 and L2 in word learning. The data suggest that the Spanish expansions of novel vocabulary words during English storybook reading resulted in comparable or greater growth in the children's expressive knowledge of the target vocabulary words. The results may also be partially explained by the benefits of comprehensible input. By providing the vocabulary expansions in a comprehensible way, young children showed slightly greater improvements in their explanations of the targeted words.

The advantages of Spanish bridging in the current study should be interpreted cautiously because there was not a statistically significant benefit for two of the three dependent measures. The effect sizes for the interaction between language of instruction and expressive definitions (.22) accounted for a relatively small amount of the variability in vocabulary growth (Cohen, 1988). Although the effect sizes were small, the Spanish vocabulary expansions demonstrated a slight advantage of bridging to the child's native language. This finding coincides with findings of previous studies that suggested bridging to be a promising intervention strategy for L2 learning (Perozzi & Chavez Sanchez, 1992; Ryan, 2005; Ulanoff & Pucci, 1999).

Home language proficiency. The statistical analyses suggest that children with stronger proficiency in at least one language showed greater responsiveness to the intervention. Between-subjects ANOVAs resulted in an interaction between the children's initial language proficiency and their vocabulary gains in terms of naming, expressive

Figure 2. Interactions between initial language proficiency and vocabulary growth on researcher-made measures of naming, expressive definitions, and receptive vocabulary of the target vocabulary. Participants with basic Spanish proficiency and limited English (HS-LE) showed greater gains on all three dependent measures than those with limited skill in both Spanish and English (LS-LE).



definitions, and receptive knowledge of the words targeted. Children with higher level Spanish proficiency and limited English skills (HS-LE) outperformed the children with low-level skills in both English and Spanish (LS-LE). The results provide evidence that children with better home language skills in Spanish demonstrate greater responsiveness to vocabulary expansions during shared book reading.

Children with low-level skills in both languages did not demonstrate equivalent word gains as children with greater proficiency in Spanish. The children who did not have a strong language base in either language appeared to have had additional difficulties in acquiring new words given a strictly oral language-based intervention. As predicted by the developmental hypothesis for lexical acquisition, the children in this study would be expected to rely on their conceptual understanding of words in L1 based on their limited levels of proficiency or BICS in English. The current findings are also consistent with the word association model and Cummins' (1984) common underlying proficiency hypothesis, which suggests that children use their knowledge of L1 to enhance acquisition in L2. Based on this premise, children's lexical acquisition in L2 is affected by the size and complexity of their vocabulary in L1, which is consistent with the current findings. Children who had limited skills in their L1 were at a disadvantage for using bridging during L2 learning due to the lack of a strong conceptual base in their L1. In sum, those children who had a better Spanish proficiency (L1) appeared to benefit the most from vocabulary expansions of unfamiliar vocabulary words during shared book reading despite limited English (L2) skills.

Although it appears that home language proficiency provides an advantage for L2 learning, these findings should be interpreted

Table 6. Average vocabulary growth for dependent variables by language proficiency.

Dependent variable	HS-LE		LS-LE	
	M	SD	M	SD
Naming	3.11	2.93	.92	1.75
Expressive Definition	7.33	2.87	3.15	3.95
Receptive	7.44	2.24	4.62	2.84

cautiously due to the fact that proficiency classifications may have been negatively affected by limitations in available assessment tools. Proficiency classifications were based on the children's scores on the Pre-LAS. It was not feasible to obtain additional information about the participant's overall language abilities using global language measures such as the Spanish Preschool Language Scales—Fourth Edition (Zimmerman, Steiner, & Pond, 2002) or the Clinical Evaluation of Language Fundamentals, Fourth Edition Spanish (Wiig, Secord, & Semel, 2003) due to the short duration of the summer program. The Pre-LAS Spanish and English were administered; however, these measures are screening tools that are used to index selected linguistic aspects by screening children's basic proficiency in each language through a brief sampling of their phonological, lexical, syntactic, and pragmatic use of the language. Future studies would benefit from improved options for bilingual assessment tools.

Overall growth. Results revealed that, overall, the participants showed significant differences between their pre- and posttest scores on researcher-made measures of naming, expressive definitions, and receptive knowledge of target vocabulary across both intervention conditions. This supports the claim that exposure to books with embedded vocabulary instruction facilitates lexical acquisition (Biemiller, 2003; Coyne et al., 2004; Justice et al., 2005; Senechal, 1997).

A look at the participants' average growth scores shows that the participants demonstrated greater gains in receptive knowledge of the target vocabulary than in naming or in expressive definitions. They receptively gained 25% of the words presented (5.77 out of 20 words). The children also made statistically significant gains in naming targeted English words after several exposures (1.82 words out of 20) and increased their scores on an expressive definition task by 4.86 out of 60 possible points. The children's gains in receptive vocabulary were much higher than their growth in naming. This finding coincides with Barnett et al. (2007), who also reported greater receptive growth that exceeded expressive acquisition. Results of a study of German vocabulary learning in bilingual children suggest that this receptive-expressive gap is not an atypical pattern in bilingual language learning (Rhode & Tiefertal, 2000). The discrepancy in performance between receptive and expressive vocabulary may be potentially explained by typical lexical progression (Magiste, 1979). Monolingual young children demonstrate superior receptive word knowledge and skills before expressive skills (Bates et al., 1988; Benedict, 1979). Higher performance on receptive

tasks could also be influenced by an increased chance of guessing the correct response on the receptive probe, although an equal opportunity to guess the correct response was present at both pre- and posttest administrations.

The effects for overall vocabulary growth following the intervention were relatively small on all three dependent measures. However, the effect size is comparable to that in other studies of monolingual children using shared storybook reading. Senechal, Thomas, and Monker (1995) reported a growth of 15% on researcher-made measures of receptive vocabulary following a shared book reading intervention with English-speaking preschoolers from middle-income families. Justice et al. (2005) conducted a study with at-risk kindergartners and targeted expressive definitions of vocabulary through word elaborations within supportive contexts. Their results showed that the children learned approximately 5 of the 30 words targeted, with a vocabulary growth of 16%. In another study of vocabulary learning of fourth graders with word explanations within the context of storybook reading (Brett et al., 1996), participants learned approximately 30% of the words targeted (6 of 20 words). However, the Brett et al. (1996) study did not control for the number of exposures to each word and definition.

The relatively small effect could be partially explained by the size of the child's current vocabulary, which has been shown to affect children's benefits from intervention (Oetting, Rice, & Swank, 1995; Rice, Buhr, & Nemeth, 1990). This limited growth may also have been influenced by environmental factors. Family interviews conducted for this study suggest that many of the participants had limited exposure to vocabulary and shared book reading. The vocabulary growth of the participants, especially those with limited skills in both languages, seems comparable to that of low-income monolingual children in the United States, for which experiential differences account for large gaps in vocabulary knowledge and emergent literacy. Previous studies with monolingual children have reported correlations between lower levels of emergent literacy attainment and low oral language proficiency (Bird, Bishop, & Freeman, 1995; Bishop & Adams, 1990; Catts, 1993; Magnusson & Naucler, 1990). Other studies have provided evidence of lower frequency of exposure to language and literacy in low-socioeconomic households, which may contribute to low levels of emergent literacy skills (Feitelson & Goldstein, 1986; Justice & Ezell, 2001; Lonigan et al., 1999; Whitehurst et al., 1994).

Limitations

The 4-week length of the summer program limited the duration of the study and access to the population for follow-up data collection. Greater differences may have been observed if there would have been a longer intervention period. Ideally, information about maintenance and generalization would have been collected. However, due to the migrant nature of this population, many of the participants moved away shortly after the summer program ended and returned on a seasonal basis. This negatively affected the feasibility of measuring the generalization and maintenance of the learned vocabulary. Also, other than the exclusion criteria that none of the children had diagnosed disabilities, information about the children's cognitive abilities was unavailable. Without assessment of the participants' intellectual abilities, it cannot be determined if their cognitive ability may have accounted for some of the variation in performance, particularly for those children with limited language proficiency in both languages.

Because the participants received the treatment in small groups, the possibility of a cluster dependency must be considered. The investigators propose that the groupings appeared to have little or no effect on the children's ability to learn the words; however, a cluster dependency cannot be ruled out empirically.

It is also important to note that the effect sizes computed for this study were not the typical effect sizes, which are based commonly on posttest differences. Effect sizes for difference scores are typically larger than effect sizes for posttest differences.

The sample size was also a limitation. A larger sample of participants would increase the power of the analysis (Cohen, 1988). A larger participant pool in this geographic area could not be obtained due to the limited number of children available in this region with similar backgrounds in that they were primarily from Mexico, had been exposed to English since preschool, had LEP, and were also between the ages of 4 and 6.

The limited availability of assessments for bilingual children also posed limitations to the procedures. The Pre-LAS English and Spanish were used to index selected aspects of the children's language proficiency. Using a single test of oral language proficiency is limited in sampling general language abilities. The need for better bilingual measures is widely recognized (Kohnert & Bates, 2002; Peña et al., 2003). Future studies would benefit from improved options in assessments for more valid measures of lexical knowledge in both L1 and L2. Although the current study was not designed to examine gender differences, an interaction between gender and responsiveness cannot be ruled out from the current findings. The effects of gender and oral proficiency on responsiveness to language learning intervention cannot be determined from the current study and warrant further examination in future studies.

Clinical Relevance

The results of this study provide additional evidence that shared reading is a useful tool to enhance bilingual word learning. Vocabulary bridging to the child's strongest language is a promising strategy to teach novel words to dual language learners. The findings of the current study suggest that clinicians and teachers may enhance vocabulary instruction by embedding repeated exposures to word definitions within meaningful contexts. Also, clinicians may consider explaining new English words by providing semantic features and definitions in Spanish. There is no evidence to suggest that the proposed intervention would in any way slow the process of learning L2, but instead would provide additional benefits in language facilitation (Gutierrez-Clellen, 1999).

In order to implement bridging techniques, monolingual educators may need to collaborate with bilingual therapists, parents, and teacher's assistants who speak the child's strongest language. Additional training and professional development may be warranted for support personnel, parents, and teachers to become skilled at providing word meaning expansions in embedded instructional contexts.

Future Research

The findings of this study add to the existing literature on facilitating vocabulary for ELLs. Although the intervention was most effective for students with proficiency in one language, additional research is needed to determine evidence-based strategies to use with students who demonstrate limited proficiency in both L1 and

L2. It would be interesting to explore additional ways to enhance the saliency of words for the children who did not respond to the intervention—those with limited skills in both languages. These alternative ways may include pairing objects or tangible manipulatives or providing additional instruction during small-group activities before and after the shared book reading.

Additional research is needed to further examine factors that influence word learning in relation to L2 learning, which include age, receptive vocabulary, phonological awareness, working memory, number of exposures, part of speech, and phonotactic probability. It is not well understood how much the part of speech influenced word learnability. The application of this intervention to teaching other parts of speech, such as verbs or adjectives, should be explored. Peña et al. (2003) suggest that younger children learning English typically learn verbs earlier than they learn nouns and other parts of speech. Other studies have shown promising results in teaching pronouns by bridging to the child's L1 (Perozzi & Chavez Sanchez, 1992).

It is also recommended that future studies examine the effects of bilingual language interventions on first or second graders to determine the effectiveness of the strategies when they are used with older children. Based on the developmental hypothesis, children with higher levels of proficiency or CALP in English would not be expected to rely on Spanish bridging for lexical acquisition. Some of the previous literature suggests that children in the older grades may lose some of their proficiency in their home language when most of the instructional time is in L2 (Anderson, 2004; Kohnert & Bates, 2002; Schiff-Myers, 1992). Shared reading with vocabulary bridging appears to be a promising intervention that warrants further evaluation with diverse populations.

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APPENDIX A. LIST OF BOOKS AND TARGET VOCABULARY

<i>Book</i>	<i>Target vocabulary</i>
Goldman, D. (1996). <i>The three little pigs</i> . Mahwah, NJ: WhistleStop.	Straw, twigs, wolf, bricks, chimney
Rey, M., & Rey, H.A. (1999). <i>Curious George and the dump truck</i> . Boston, MA: Houghton Mifflin.	Window, ducklings, gardeners, wheel, island
Kirk, D. (2000). <i>Little Miss Spider at Sunny Patch School</i> . New York, NY: Scholastic Press.	Ruler, cricket, rose, bee, spout
Mayer, M. (1990). <i>Just going to the dentist</i> . New York, NY: Random House.	Teeth, nurse, braces, bib, X-rays

APPENDIX B. EXPRESSIVE RESEARCHER-MADE VOCABULARY DEFINITIONS SCORING SCHEME

<i>Point</i>	<i>Criterion</i>	<i>Examples of possible responses</i>
0	<p><i>No knowledge</i></p> <ul style="list-style-type: none"> No response Response of “I don’t know” or shrug of shoulders Inappropriate definition Definition of homophone Mentions only features in the book (parts of the story) Only says the word in Spanish 	<ul style="list-style-type: none"> Teeth Television Lobo Puede hacer que se tumben casas (wolf) Dog (wolf) They can spill you If you throw away it go, walk (wheel) It runs (wheel) Tiene una bolita que parece un huevo (wheel)
1	<p><i>Emergent knowledge</i></p> <ul style="list-style-type: none"> Vague, imprecise, or partial definition Example of word in context (but does not define meaning) A description with 1 example or attribute of the word or item/person/object within the word category 	<ul style="list-style-type: none"> Para agarrar comida (teeth) Comen puercos (wolf) Take a picture (x-ray) They scratch you (bee) Quiere picar a una persona (bee) Lo quieres poner en la tronca (wheel) Paran (wheel) Quiere comer animals (wolf)
2	<p><i>Partial/Incomplete knowledge</i></p> <ul style="list-style-type: none"> 2 or more different attributes of the word or item/person/object within the word category Unambiguous synonym alone or used in context that defines meaning A description with <i>more than 1</i> example or attribute of the word or item/person/object within the word category 	<ul style="list-style-type: none"> Que anda volando y te puede picar aqui (bee) The picture of the teeth; lo pone en la luz pa’ que se vea (X-ray) They eat, they run, they can jump (wolf) Circle, when somebody drive, it move (wheel) Lo tienen los carros; caminan (wheel) Se abre y se cierra; entran las moscas (window) Patitos babies; viven en el agua (ducklings)
3	<p><i>Complete knowledge</i></p> <ul style="list-style-type: none"> Complete and precise definition At least 2 or more descriptors Narrows the possibility of confusing the target word with any other word 	<ul style="list-style-type: none"> A bug with black and yellow stripes that has a sharp point and can sting you; it makes honey (bee) Flor, tiene espinas, te pican las espinas, puedes poner en agua (rose) Trees, little ones; se caen; ya no tienen leaves (sticks)

Additional Guidelines:

- When in doubt between a higher and a lower score (0 and 1), use the higher score if the child provided additional context and the lower score if no context was given.
- If the child provides multiple utterances, use a higher score if the child provides different attributes of the word and use a lower score if the child provides very long descriptions of a single attribute.

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