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Building the Oral Language of Young Hispanic Children Through Interactive Read Alouds and Vocabulary Games at Preschool and at Home

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Abstract

We conducted two studies to examine the effects of an interactive read aloud and vocabulary intervention on the vocabulary knowledge of Spanish-speaking preschoolers living in the U.S. In Study 1, 68 children ($n = 34$ in the treatment group) and 6 parents in the treatment group received the intervention in Spanish at home, and in Spanish and English in the preschool. Results indicated a significant effect of the intervention on children's receptive and expressive vocabulary knowledge in Spanish favoring the treatment group. Effect sizes were moderate to large. English outcomes were significant for the treatment group only on the receptive vocabulary measure. Children who participated in the Home plus Preschool intervention ($n = 6$) made significant gains on their Spanish vocabulary knowledge with large effect sizes. In Study 2 we conducted a single subject design study with four preschool children and their mothers. The intervention was provided at home. Results indicated a change from baseline to maintenance for all four children on their Spanish vocabulary knowledge. Parents in both studies saw important changes in their children's engagement in read alouds as well as in their children's communication skills.

Key Words: Hispanic families, English learners, bilingual language proficiency, interactive reading, early childhood

On average, English learners (ELs) in the United States (U.S.) are struggling academically compared to their non-EL peers, and it is critical for researchers, teachers, and school leaders to better understand how to effectively meet the academic needs of this growing student population (Cena et al., 2013). Moreover, the evidence suggests that ELs have lower vocabulary and language proficiency in their native language even before they enter kindergarten, putting them already at a disadvantage when compared to their English only (EO) peers, and increasing their risk for developing a disability in communication later (IDEA 2004; Lee & Burkam, 2002).

The most recent survey from the U.S. Census Bureau (Ennis, Rios-Vargas, & Albert, 2011) indicates that the Hispanic population is the largest, youngest, and fastest growing minority group in the U.S. The accelerated growth rate of the Hispanic population presents a major concern, mainly because their risk of dropping out of school is higher than the risk of other ethnic groups (National Task Force on Early Childhood Education for Hispanics, 2007). The struggle of Hispanic students has to do, in part, with their low socioeconomic status (SES). In the U.S., approximately 37% of Hispanic ELs live below the poverty line compared to the national average of 22% (Fry & López, 2012).

In the seminal study by Hart & Risley (1995) parents with lower SES talked less to their children, and their communication was more directive and less conversational. In contrast, parents with higher SES talked more, used a variety of vocabulary and grammatical structures, and the communication included positive affirmations and expla-

nations. Other studies by Dickinson & Tabors (2001), and Kieffer (2008) have confirmed these findings suggesting that low SES have a significant effect on children's vocabulary and language development. Therefore, the vocabulary and language proficiency gap of young ELs, particularly of young Hispanic ELs who represent approximately 80% of the EL population (Fry & López, 2012), can be also explained by their low SES.

A potential solution to reducing the vocabulary and language proficiency gap between young ELs and non-ELs is developing an intervention that enriches the communication between children and adults at home in Spanish, the dominant language, and in English or Spanish in preschool. The reason to start early is because the developmental window comprised between preschool and second grade, which corresponds to the *pre-reading* and *learning to read* phases of development (Ehri & McCormick, 1998), represents a critical time for the implementation of early interventions aimed to prevent and reduce reading difficulties in children (August & Shanahan, 2006; National Reading Panel, 2000; Snow, Burns, & Griffin, 1998).

Thus, the purpose of this paper is to report results of two studies designed to examine the effects of an intervention used in preschool classrooms and in the home setting to enhance the vocabulary and language proficiency of young ELs in Spanish and in English. Study 1 includes the preschool intervention in Spanish and in English, and the home intervention in Spanish, while Study 2 includes the home intervention in Spanish only. We define ELs as children who speak a language other than English at home, and who have not yet mastered English to benefit from being in an English only classroom (August & Shanahan, 2006). In this paper we use the term Hispanic children or Hispanic ELs interchangeably given that young children who live in the U.S. and speak mainly Spanish at home are just starting to learn English. Next we describe our rationale for a bilingual intervention in two different settings, the home and the preschool, and the research evidence to support it.

Benefits of Bilingualism

Our rationale to design an intervention that can be implemented in the child's native language in the home, and in English or in the native language in the preschool is based on Cummins (1979) interdependence hypothesis, the evidence of the benefits of bilingualism in improving cognition (Bialystock et al., 2005), and the realization that rich, interactive conversations can only occur if adults can communicate with their children in the language they are most proficient in (Moll, Amanti, Neff, & Gonzalez, 1992).

Cummins (1979) suggests that there is an interaction between the language of instruction and the level of competence young ELs develop in their native language when intensive exposure to their second language begins. In other words, learning a second language depends on the level of proficiency in the first language. Therefore, increasing the proficiency in the first language appears to benefit second language acquisition (Baker, Basaraba, & Polanco, in press).

Bialystock et al. (2005) has suggested that bilingualism has additional benefits to learning such as a child's ability to see things from different perspectives because of their need to navigate two linguistic systems simultaneously. This ability is enhanced by the fact that bilinguals activate information about both languages when they are using one language alone when listening to speech, reading, and preparing to speak (Bialystok, Craik, Green, & Gollan, 2009; Kroll, Bobb & Hoshino, 2014). In addition, studies in neuroscience indicate that bilinguals appear to outperform monolinguals in cognitive tasks that require ignoring irrelevant information, task switching, and resolving conflict (Calvo and Bialystok, 2014). Thus, providing an intervention that takes into account children's bilingual development might also help them develop their cognitive skills, and potentially reduce the academic gap between low SES bilingual children and high SES monolingual children because of the additive benefit of bilingualism on cognition.

Finally, rich interactions can only occur if parents can express their ideas and emotions fluently in their native language (Baker, Al Otaiba, Ortiz, Correa, & Cole, 2014). This is particularly important in the Hispanic culture where parents are viewed as their children's first teachers and the transmitters of cultural values such as respect (*respeto*), and politeness (*educación;* Jensen & Sawyer, 2013).

Evidence-Based Bilingual Interventions in Preschool

Three studies have examined the effects of bilingual instruction in preschool classrooms on ELs' English and Spanish oral language and emergent literacy outcomes (Barnett, Yarosz, Thomas, Jun, & Blanco, 2007; Duran, Roseth, & Hoffman, 2009; Farver, Lonigan, & Eppe, 2009). The sample for the Barnett et al. (2007) study consisted of 62, three and four year old children from both Spanish and English backgrounds. Children were randomly assigned to three groups: (a) a Spanish instruction only group, (b) a simultaneous Spanish and English instruction group, and (c) an English instruction only group. Findings indicated that children in the Spanish-English instructional group made significantly more gains compared to the English-only group on Spanish vocabulary outcomes, and similar gains as the English-only group on English vocabulary outcomes indicating that a bilingual program appeared to benefit children in both languages. The study by Duran et al. (2009) consisted of 31 Spanish-speaking preschoolers with ages ranging from 38 to 48 months who were attending a Head Start program located in a rural,

working class Midwestern town of the U.S. Students were randomly assigned to a transition program (i.e., where they learned Spanish in preschool and then English starting in kindergarten) compared to children who attended English only preschools. Findings suggested that young ELs in the transitional bilingual program had gained as much English as young ELs in the English only program, and they had maintained their Spanish skills.

In the study by Farver et al. (2009), participants were 94 Spanish-speaking ELs, all enrolled in ten different classes in a Head Start program in an inner-city neighborhood of Los Angeles, CA. Findings indicated that all young ELs were able to learn English using a scripted program. Results of these studies confirm research conducted with older Spanish-speaking ELs, suggesting native language instruction does not confuse or reduce the opportunities for young ELs to acquire English (Baker et al., 2012; Goldenberg, 2013;Slavin & Cheung, 2005).

Evidence-Based Monolingual Interventions to Improve the Vocabulary and Language Proficiency of Young Children

Most research studies in preschool have used a shared book reading approach to teach vocabulary (Ezell & Justice, 2005; Pollard-Durodola et al., 2011). Specifically, one of the most widely used approaches is dialogic reading (DR, August & Shanahan, 2006; Correa, Lo, Godfrey-Hurrell, Swart, & Baker, 2015; Swanson et al., 2011; What Works Clearinghouse [WWC], 2010). DR is a read-aloud approach to shared book reading in which children engage in a conversation with adults about the storybook. Adults are trained to provide children with prompts to increase their sophistication of descriptions of the material in the picture books. The ultimate goal of DR is for the child to become the storyteller, and for the adult to assume the role of an active listener, asking questions, and adding information that helps the child build their stories around the book (Lonigan & Whitehurst, 1998). Given that we were also interested in supporting children's language development in their native language at home, we searched for studies that included a home component.

We were able to locate only three studies that were conducted in the home and preschool setting using DR (Crain-Thoreson & Dale, 1999; Lonigan & Whitehurst, 1998; Whitehurst et al., 1994). These studies were conducted in English more than 15 years ago, and the majority of the participants were English native speakers. However, we summarize the findings here given the dearth of research on the effects of DR for young ELs who don't speak English as their native language. The Crain-Thoreson and Dale (1999) study consisted of 32 adults and 32 children (22 boys and 10 girls) ranging in age between 39 and 66 months who qualified for special education services. All the children were enrolled in publicly funded preschool programs in the Pacific Northwest. Children were randomly assigned to a parent group where parents were trained on DR techniques, a preschool staff group where teachers were trained on DR techniques, and a preschool staff control group where staff used typical read aloud strategies. Read aloud time was conducted one on one. Findings indicated that adults in the parent and the staff treatment group were able to learn the DR techniques quickly with an instructional video. However, there were no significant differences in children's language outcomes between groups. The authors suggest that a longer intervention with a larger sample size could potentially provide additional information about the effect of DR on children requiring special education services.

The Lonigan and Whitehurst (1998) study randomly assigned 91 low-income children (49 girls and 42 boys) ranging in age between 33 and 60 months to four conditions: DR at home and at school, DR at school, DR at home only, and a control condition where children engaged in playing activities supervised by their teachers. Findings indicated that children in the DR school and home condition made the largest gains in their expressive vocabulary and descriptive use of language. The vocabulary gains were attributed to the school component while the descriptive language use was attributed to the home component. Effect sizes were moderate to large depending on the level of implementation of the DR program in the participating centers. Children attending high implementation centers made more gains than children attending low implementation centers.

In the Whitehurst, Arnold, et al. (1994) study, 73, three-year-old children from low-income families from five day-care centers in Suffolk County, NY, were randomly assigned to the same three school conditions as in the Lonigan and Whitehurst study (i.e., a DR home only condition was not included). Participants were approximately 50% Black, 25% Hispanic, and 25% White. Findings indicated significant differences between the control and the two DR school conditions on children's expressive vocabulary knowledge. Moreover, children in the DR school and parent condition made significantly larger gains in their vocabulary use than children in the DR school condition only. However, given that a parent only condition was not included, it is difficult to determine what exactly accounted for the increase in vocabulary gains in the DR school plus home condition.

In summary, findings in the previously mentioned studies suggest that children who participated in the DR intervention at home *and* at preschool scored significantly higher on measures of receptive and expressive vocabulary than children who received the school component alone, the home condition alone, or children in the control condition. Moreover, findings also suggest that interactive read alouds have the potential of increasing children's use of language, an important component for the development

of later emergent literacy skills, particularly reading comprehension (Ehri, 2014; Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1994).

We also found two studies that examined the effects of an adapted DR intervention in Spanish designed for Hispanic parents (Correa, Huber, & Miller, 2009; Tardaguila, 2007). Both studies were conducted at home with low-income Mexican migrant families living in the Southeast of the U.S. All mothers had more than one child, and the number of years living in the U.S. ranged from four to 15. In both studies findings indicated that families had a difficult time remembering all of the DR prompts when reading to their children in Spanish, and that mothers learned how to comment on the story, prompt children, and ask questions during DR activities, but they had more difficulty expanding and extending the child's native language.

Based on this previous research, we decided to examine the effects of a home and school interactive read aloud intervention adapted from DR to improve the vocabulary and language proficiency of young Hispanic ELs in Spanish and in English. We called the intervention LINK (i.e., ENLACE in Spanish) because we were interested in the relation between native language instruction and English, as well as between home and preschool activities. Specifically, we attempted to answer the following research questions.

1. Did young ELs in classrooms where the LINK intervention took place improve their expressive and receptive vocabulary knowledge from pre-test to post-test in Spanish and in English?
2. Did young ELs who received the LINK intervention improve their expressive vocabulary knowledge compared to young ELs in typical preschool classrooms?
3. Did young ELs who received the home plus preschool LINK intervention improve their expressive and receptive vocabulary knowledge more than young ELs who received the LINK preschool intervention alone?
4. Did young ELs who received the LINK intervention in the home only improve their expressive and receptive vocabulary knowledge in Spanish?
5. What was the teacher and parent perception of children's language proficiency after the LINK intervention?

To answer the first three research questions, we conducted a study (i.e., Study 1) in a Head Start program in the Pacific Northwest region of the U.S. To answer research question number 4 we conducted a Single Subject Design study (i.e., Study 2) in the Southeast of the U.S. In Study 2 we examined the effect of the home intervention only because we were interested in learning more about how LINK could be implemented in the home setting in a different location from Study 1. To answer the fifth research question teachers and parents completed a social validity survey in Study 1, and parents in both studies were interviewed. Given that the purpose of the intervention was to improve children's vocabulary and language proficiency, the home component of the intervention was provided in Spanish, the language spoken at home. The preschool component was provided in either Spanish, or in English depending on the teachers' English or Spanish language proficiency.

METHOD

Research Design in Study 1

The research design in Study 1 was quasi-experimental (given that we did not randomly assign classrooms or children to the treatment or the comparison condition). To analyze the data we compared gain scores from pre-test to post-test between young ELs who (a) received the LINK intervention verses young ELs who received typical preschool instruction, and (b) received the LINK home + preschool intervention verses young ELs who received the LINK preschool intervention alone.

Participants. In Study 1 there were (a) 68 preschool Hispanic ELs (33 girls and 35 boys), attending a Head Start program in a rural town in the Pacific Northwest of the U.S, (b) six mothers, and (c) four teachers. Head Start programs serve exclusively low-income families, and in this preschool, a large number of young ELs were from migrant families (i.e., they tend to move within the school year from one region of the country to another depending on harvest cycles, Oregon Child Development Coalition, 2015).

Children. All 68 children had parental consent to participate in the study. All were Spanish speakers born in Mexico or in the U.S. In this group, 22 of the ELs were three years old, and 46 were four years old. They attended the preschool four days a week for four hours. There were 34 children in the treatment group (19 girls and 15 boys), and 34 children in the control group (14 girls and 20 boys).

Parents. Six children (3, four-year old boys and 3, four-year old girls) from the treatment group participated in the combined home plus preschool intervention. To recruit mothers, teachers and researchers met with mothers in the treatment group to explain the project. Mothers who signed a consent form, and who were able to attend the training sessions, were eligible to participate. Meetings with the mothers occurred in the municipal library. All the mothers participating in the home plus preschool intervention were of Mexican origin and spoke only Spanish at home. One of the mothers did not know how to read and write; the other mothers had completed middle school. All of the mothers were low-income, and they all had more than one child.

Teachers. The administrators from the Head Start program asked teachers in the program if they were interested in participating in the project. Two of four teachers agreed to be trained on the LINK intervention, so they were assigned to the treatment group. The other two teachers were assigned to the control group. Two teachers were native English speakers (one treatment and one control), and the other two were native Spanish speakers (one treatment and one control). Each teacher had at least two assistants who were fluent in both English and Spanish. The teacher who spoke only English in the treatment group provided the intervention in English with support from her assistants in Spanish. The teacher who spoke only Spanish in the treatment group provided the intervention in Spanish with support from her assistants in English. Teachers in the control group read aloud to their young ELs as they did normally, and they did not incorporate vocabulary games into their lessons.

Description of the intervention. The LINK intervention lasted approximately three months in both studies (from mid-September to November in Study 1, and from March to mid-May in Study 2). The intervention consisted of two main components: (a) a teacher professional development module to increase the quality of the read alouds in preschool, and children's breadth of vocabulary knowledge; (b) parent workshops that provided parents with training on how to read interactively to their children, and how to play vocabulary games at home. The teacher professional development module consisted of a computer-based presentation that included a theoretical framework about the importance of interactive reading and vocabulary development, with specific examples of how teachers could enhance their read alouds, and play vocabulary games with their students in small groups. A video of a mother reading to her child was included to illustrate different ways to read aloud with young ELs, and point out the differences in the child's behavior between a typical read aloud (i.e., when the adult reads the words in the book), and an interactive read aloud (i.e., when the adults asks the child *wh*-questions and follows the lead of the child during the read aloud). The parent workshops included a similar computer-based presentation and video but the theoretical framework was reduced to one slide only.

In developing the intervention we selected four books that were popular with preschool children and that were commercially available in Spanish and in English. The books were: *No David* (Shannon, 1998); *Where the Wild Things are* (Sendak, 1988), *If you Give a Mouse a Cookie* (Numeroff, 1985), and *Corduroy* (Freeman, 1968). We determined that these books had excellent potential for young ELs to make connections with other texts and topics addressed in Hispanic homes and preschool curricula (e.g., mother-child relations, friendship, habits and routines, generosity).

The vocabulary games were intended for young ELs to build their breadth of vocabulary knowledge, and increase their mental representations of the words taught (Ehri, 2014). We selected words from each book that would help young ELs understand the story and build their knowledge of words that are used to converse about daily activities. We focused mainly on nouns, verbs, or adjectives that were useful to retell the story. Once we selected the words we searched the internet for free pictures that would illustrate these words. We printed and then cut the printed pictures on white cards. All pictures included the name of the picture in Spanish and in English on the back of the cards. We also asked teachers and parents for feedback on the names of the pictures to ensure we were using the most common words parents and teachers would use when engaging in LINK activities.

The vocabulary games had directions in Spanish and in English for the preschool, and teachers were encouraged to use the game in small groups to increase children's breadth of vocabulary. The vocabulary games for the home were intended to be played in Spanish primarily to enrich children's Spanish vocabulary. Teachers and parents were taught to play three games with the cards: the Rapid Naming Game (*El juego de nombrar rápidamente*), where children try to say the word of the picture on the cards as fast as they can, the Matching Game (*El juego de los iguales*), where children match two identical cards, and the Pointing Game (*El juego de señalar),* where children point to the picture of the word the adult says.

Training for preschool teachers. All teacher trainings were conducted in Spanish or English. Teachers received a one-day training on how to conduct interactive read alouds using the LINK modifications to DR. In these modifications we simplified the DR approach by having teachers divide the conversations with young ELs into before, during, and after reading, focusing on the following: (1) before reading, comment on the book and ask a warm-up question; (2) during reading, ask *wh*-questions such as *when, why, who, what,* and *how,* repeat and expand what the child says; and (3) after reading, ask prediction questions, connect book to other books or to life, play vocabulary games. The teacher training included plenty of practice opportunities, and all teachers and assistants in the selected classrooms were invited to participate. In addition, research assistants on the project visited the classrooms every two weeks to provide feedback and model lessons if necessary.

Training for parents. The training for parents was conducted entirely in Spanish. It lasted between 1–2 hours, and was conducted either in the library or in the home every other week. Researchers explained first the importance of reading aloud, and the different ways that read alouds could be conducted. Second, researchers discussed how language can be extended by asking young ELs *wh*-questions instead of *Yes/No* questions. Third, a video was

shown of a mother and child reading books together. After viewing the video, parents discussed the interaction. Fourth, parents practiced the interactive reading techniques with each other while the trainers provided immediate feedback. This feedback focused on ensuring that parents (a) asked *wh-* questions instead of *Yes/No* questions, (b) encouraged a conversation about the pictures in the book instead of reading the words in the book only, and (c) learned different strategies on how to ask follow-on questions.

At the end of the workshop parents discussed with researchers the logistics of conducting interactive read alouds including what to do when there is more than one child in the home, or the optimal time that read alouds could take place during the day. At the end of the workshop each mother received one of the four books selected for the intervention, and the vocabulary cards that accompanied the book. The other three books were provided every two weeks along with the vocabulary cards. Appendix A includes an example of the read aloud intervention in Spanish and in English for the preschool, and in Spanish for the home. For an example of the vocabulary intervention see (Baker et al., 2014).

Research Design in Study 2

The research design in Study 2 was a replicated single case design (Horner & Baer, 1978). We collected 4-5 data points at baseline (i.e., before the books were introduced), 8-12 data points after the intervention was introduced (i.e., we trained mothers on how to use the books), and another 4-6 data points during the maintenance phase (i.e., after the intervention ended and no more books were distributed). Feedback was provided to mothers on their interactive read alouds during the intervention phase only. The small differences among children in the number of data points occurred because of absences during assessments. The order of participants starting the intervention was determined by the administrators of the program and was based on children's language assessment scores. The child with the lowest language proficiency started the intervention first and was followed by the child who had the second lowest score, and then the child who had the third lowest score. The child who started the intervention last had the highest language proficiency score of the four children.

All four young ELs were assessed at least once per week on the Spanish version of the researcher-developed measures during the intervention, and during the maintenance period using alternate forms of each of the measures. To determine the effects of the intervention, we drew a trendline through the data points during each of the measurement phases, and we also inspected the data visually. The trendline allowed us to examine the pattern of behavior within each of the three phases. In baseline, we expected a zero trend (i.e., no change in behavior), while during the intervention we expect an increase in the trendline. Based on the visual inspection of the data, we found that the trendline was not zero at baseline. Therefore, we also calculated the Tau-U statistic, which is useful for controlling non-zero baseline trends (Parker, Vannest, Davis, Sauber, 2010). To calculate the Tau-U statistic, we used the web-based calculator application by Vannest, Parker, and Gonen (2011). According to Parker et al. (2010), Tau-U estimates are considered large when they are above 93% (i.e., *Tau-U* $>$ 0.93), moderate when they are between 66-92% (i.e., *Tau-U* between 0.66 and 0.92), and low when they are below 65% (i.e., *Tau-U* $<$ 0.65).

Participants. In this study there were four mother-child dyads (one boy and three girls) who were part of a community based non-profit organization that operates in a large urban city in the Southeast of the U.S. Parent classes, a pre-school readiness program, and family support in Spanish is provided by this program to Hispanic families and their children who are economically disadvantaged. The organization proposed that these four mothers participate in the study based on their children's low language and vocabulary knowledge as determined by language measures and observations. All the mothers were born in Mexico, and spoke only Spanish at home. All had more than one child, and their level of education was below high school.

Description of the intervention. The intervention for parents in Study 2 was the same as the intervention provided to parents in Study 1. The main difference between the two interventions was the location. In Study 2 we trained mothers at their homes. During the intervention phase, mothers received feedback on their read aloud practices from a trained research assistant.

Measures. The following measures were used in both studies with the exception of teacher observations and interviews that were conducted in Study 1 only.

Rapid Naming Assessment (RNA). The first author developed a measure to assess children's expressive vocabulary. The measure is loosely based on the Picture Naming Subtest from the Individual Growth and Development Indicators for Infants and Toddlers (IGDI) for preschoolers (Missall et al., 2007). To create the assessment, we used the cards from the Rapid Naming Game, and asked children to name the pictures on cards as fast as they could for 1 minute. Cards were shuffled before each of the assessments (so they would be presented in a random order), and children were assessed in Spanish and in English in Study 1, and in Spanish only in Study 2 because they all attended preschool in Spanish for one day only. On this measure, alternate form-reliability was .79 in Spanish, and .85 in English.

Receptive Vocabulary Knowledge (RVK). For this researcher developed measure we asked young ELs to point to the

Table 1
Pre-test and Post-test Scores for Children in the Treatment Group in Study 1

	Pre-test		Post-test			
	N	*M* (*SD*)	*N*	*M* (*SD*)	p-value	Effect size (Cohen's *d*)
RVK English	34	9.6 (3.29)	34	11.62 (3.25)	0.002*	0.63
RVK Spanish	34	9.24 (4.26)	34	11.03 (3.22)	0.0002*	0.50
RNA English	31	2.38 (2.24)	31	2.58 (2.36)	0.662	NA
RNA Spanish	31	3.76 (2.59)	31	5.42 (2.95)	0.00001*	0.61

*p-value < 0.05. RVK = Receptive Vocabulary Knowledge; RNA = Rapid Naming Assessment

picture that best matched the word the examiner said out of four different pictures. All the words on this measure were useful to conduct retells of the books read during the intervention. The RVK was loosely based on the Peabody Picture Vocabulary Test (PPVT; Dunn, & Dunn, 2007). The measure was untimed, but children took, in general, 5-10 minutes to complete the assessment. For Study 2 we created 20 different alternate forms of the measure in Spanish (i.e., we changed the order of the selected words to avoid students learning to order of the cards) given that the RVK was administered multiple times. Alternate form-reliability was .81 in Spanish, and .53 in English.

Adult surveys and interviews. Parents ($N = 6$) and teachers (i.e., two teachers, and three assistants) who participated in the intervention in Study 1 were asked to complete a brief social validity survey in which they reported their satisfaction with the LINK training workshops and the LINK materials they used. Circling numbers 1 or 2 would indicate that the adult strongly agrees with the statement in the survey. We also interviewed parents in both studies ($N = 10$) to find out more about their perceptions of the project, and if they noticed any changes in their children's reading behavior. We report on these outcomes descriptively in the results section.

Observations. We videotaped teachers providing the intervention in the preschool, and parents practicing read alouds with their young ELs either in the library or at home four times, on average. These videotapes were then used to provide teachers and parents with feedback on their delivery of the LINK intervention, and to evaluate fidelity of implementation. Results from the observations in the classroom indicated that (a) teachers were able to implement the LINK read alouds every other day for ten minutes at a time, (b) vocabulary games were played during small group instruction every other day, and (c) the materials were appropriate for children's use. Results from the observations in the home indicated important changes in children's behavior toward reading books and using vocabulary from pre-test to post-test.

Data collection. Data collectors received two hours of professional training on how to administer and score the receptive and expressive student measures. If discrepancies appeared during the training, they were discussed immediately. Interrater reliability after the training was above 90%. In addition, in Study 1, two data collectors scored the same assessments for approximately 20% of the children. Interrater reliability was 95% in the field.

RESULTS

We report results within each study by research question.

Study 1

Did young ELs in classrooms where the LINK intervention took place improve their vocabulary knowledge from pre-test to post-test in Spanish and in English? To address this question, we compared the differences between the mean pre-test and post-test scores on the RVK and the RNA measures in both English and Spanish for all 34 young ELs in the treatment group, using a paired samples t-test. We analyzed 34 complete pre-test and post-test pairs for the RVK measure, and 31 complete pre-test and post-test pairs for the RNA measure. Absences were the reason that complete data were available for only 31 of the 34 children. The three children with missing data were excluded from the RNA analysis.

As shown in Table 1, the results on the RVK at post-test were, on average, significantly higher than at pre-test by 2.02 points on the English version of the assessment ($t(33) = -3.47$, $p < .01$), and 1.79 points on the Spanish version of the assessment ($t(33) = -4.28$, $p < .01$). Effect sizes (Cohen's d) were 0.63 in English and 0.50 in Spanish. These results indicate young ELs in the treatment group significantly increased their receptive vocabulary knowledge as measured by the RVK measures in Spanish and in English from pre-test to post-test. On the RNA, post-test scores were significantly higher than pre-test scores by 1.66 points on the Spanish version ($t(30) = -5.223$, $p < .01$) and the effect size was 0.61. Differences from pre-test to post-test scores on the RNA in English were not statistically significant.

Did young ELs who received the LINK intervention improve their expressive vocabulary knowledge compared to young ELs in typical preschool classrooms? To answer this question, we calculated gain scores by subtracting the pre-test score from the post-test score for children in the treatment group, and in the control preschool group. As shown in Table 2, results on the Spanish RNA gain scores indicated a statistically significant

Table 2
Comparison of Post-test Scores between Treatment and Control Conditions on the Rapid Naming Assessment in Study 1

	Gain scores					
	Treatment		Control			
Measure	*n*	*M* (*SD*)	*n*	*M* (*SD*)	p-value	Effect size (Cohen's *d*)
RNA English	31	0.13 (1.63)	34	0.41 (1.18)	0.43	NA
RNA Spanish	31	1.55 (1.65)	34	0.21 (1.67)	0.002*	0.82

**p-value* < 0.05. RVK = Receptive Vocabulary Knowledge; RNA = Rapid Naming Assessment

difference between treatment and control groups with a mean difference of 1.34 points (t (62.5) = −3.262, p < .01). The effect size was 0.82, which is a moderate to large effect. Gain scores on the English RNA between treatment and control groups were not statistically significant.

Did young ELs who received the home and preschool LINK intervention improve their vocabulary knowledge more than young ELs who received the LINK preschool intervention alone? We compared gain score results on the RNA and RVK between young ELs who received the preschool intervention only (n = 25), and young ELs who received the home plus preschool intervention (n = 6). Table 3 indicates there was a significant difference between young ELs who received the preschool intervention only, and those who received the preschool intervention plus the home intervention. Differences on the Spanish RNA were 1.39 points, favoring the home plus preschool intervention group (d = 0.91). Differences on the Spanish RVK were 2.39 points favoring the home plus preschool intervention (d = 0.79). Gain score comparisons on the English RNA and RVK were not significant.

Study 2

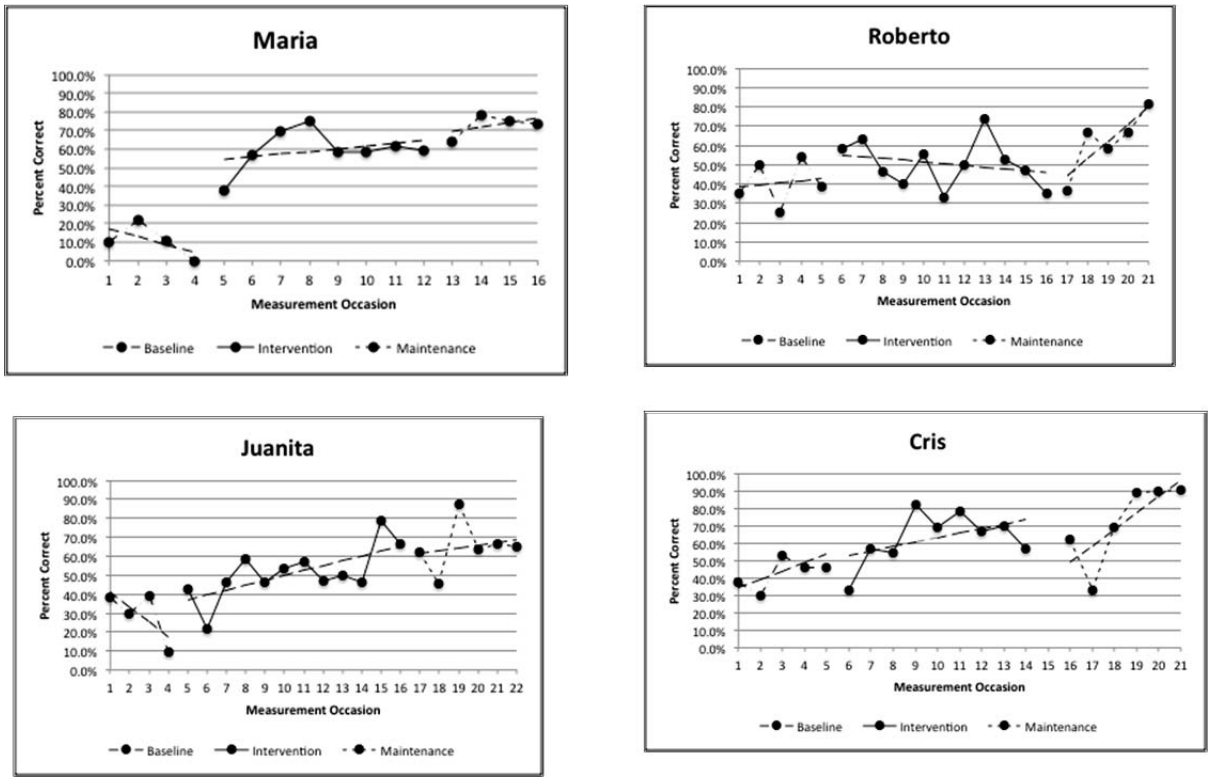
Did young ELs who received the LINK intervention in the home only improve their vocabulary knowledge in Spanish? The visual analysis, shown in Figure 1, indicates that Maria, Juanita, and Cris significantly improved their expressive vocabulary as measured by the RNA (*Tau-U* ranged from 0.82 to 1, p < .01). Roberto's expressive vocabulary did not change from baseline to intervention (*Tau-U* = 0.40, p >. 05), but it did change significantly between baseline and maintenance (*Tau-U* = 0.76, p < .05) suggesting that Roberto did improve his vocabulary knowledge, but at a slower pace than his peers. The overall effect size taking all the data between baseline and intervention for the four young ELs was 0.76 and between baseline and maintenance was 0.87. The larger effect size between baseline and maintenance than between baseline and intervention suggests that young ELs continued to increase their expressive vocabulary even after the intervention ended.

Results from the receptive vocabulary assessment as illustrated in Figure 2, indicate that Roberto, Juanita, and Cris made less gains on their receptive vocabulary knowledge (*Tau-U* = 0.50; p < .01) compared to gains on their expressive vocabulary knowledge between baseline and intervention. The exception was the student

Table 3
Descriptive Information for Gain Scores between the Home + Preschool Condition and the Preschool Condition Only for the Treatment Group in Study 1

	Gain scores within the treatment group					
	Home+pre-school		Preschool only			
	n	*M* (*SD*)	*n*	*M* (*SD*)	p-value	Effect size (Cohen's *d*)
RNA English	6	0.17 (1.94)	25	0.12 (1.59)	0.958	NA
RNA Spanish	6	2.67 (0.82)	25	1.28 (1.7)	0.009*	0.91
RVK English	6	12.17 (2.04)	25	11.5 (3.47)	0.54	NA
RVK Spanish	6	13 (1.26)	25	10.6 (3.37)	0.008*	0.79

**p-value* < 0.05. RVK = Receptive Vocabulary Knowledge; RNA = Rapid Naming Assessment



Study 2 - Figure 1: *Rapid Naming Assessment During Three Measurement Occasions*

Maria, who appeared to have significantly improved her receptive vocabulary from baseline to intervention (*Tau-U* = 0.89, $p < .01$).

Results from Studies 1 and 2 Combined

What was the teacher and parental perception of children's language proficiency after the LINK intervention in Studies 1 and 2? Overall results from the social validity survey of parents and teachers suggests that teachers thought the training was very helpful (m= 1.4), that children's language in their classroom had improved (m = 1.4), and that other teachers would also like to know more about the LINK interactive reading techniques (m = 1.2). Parents thought that the training was very helpful (m = 1.25), that their children's vocabulary and language had improved (m = 1.75), and that other parents would also like to learn more about interactive reading and vocabulary games (m = 1.25). In addition, parents reported that they had increased the reading time at home at the request of their children.

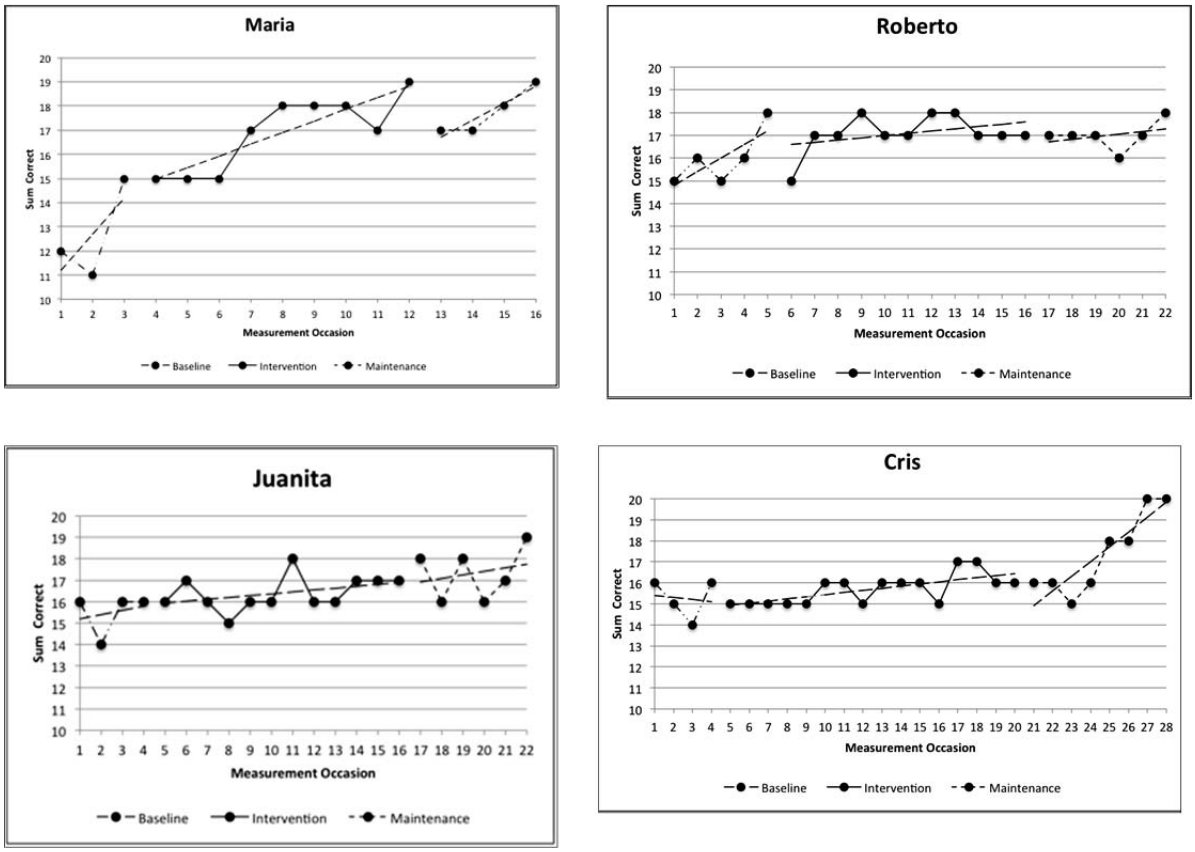
Below is a summary of some of the parents' comments captured during the interviews with mothers. These interviews were conducted in the library in Study 1, and in one of the mother's home in Study 2.

Two of the mothers, Gabriela and Maria, said that they, and their husbands, had noticed that their children had increased their level of engagement when the parents read books aloud to them, and they were impressed to see their children looking forward to reading and playing the vocabulary games over and over again.

Cecilia was very excited by her son's progress in his language development after they had been reading the books interactively. Veronica, would like to continue the workshops although her son moved to a different classroom.

Carolina commented that her daughter wanted now to spend more time reading books with her than ever before. Johanna said that before the LINK intervention she did not like to read books with her daughter, Maria. She left this task to her husband. However, after seeing how much her daughter enjoyed reading books with her to the point where her daughter became the storyteller and she became the facilitator, she realized the importance of reading with Maria. She also noticed that Maria started changing her behavior at preschool. She became more sociable and confident, and now Johanna thinks that her daughter will do well when she starts kindergarten in the fall.

Isabel, who has a daughter with Down syndrome and a four-year-old son, also mentioned how this interactive reading engaged their children in reading books and playing games together (Isabel cannot read and write herself). All mothers reported that the children were taking now the initiative to read, and they wanted to spend time playing the card games with their siblings.



Study 2 - Figure 2: *Receptive Vocabulary Assessment During Three Measurement Occasions*

DISCUSSION

The purpose of this study was to improve the language and vocabulary proficiency of young ELs. The intervention included interactive read alouds and vocabulary activities that encouraged extended discourse and an increase in the breadth of children's vocabulary knowledge. Three major findings can be derived from this study. First, an interactive read aloud intervention with vocabulary games can increase children's breadth of their receptive and expressive vocabulary in their native language, and potentially in English. Second, a home and preschool intervention combined can potentially accelerate the development of young EL's communicative skills, and vocabulary. Third, parents can learn how to enrich their communication with their children using read alouds with minimal training. Next we discuss our findings in the context of previous research conducted with young children.

Increase in Young EL's Expressive and Receptive Vocabulary

As indicated by our data, young ELs improved their Spanish receptive and expressive vocabulary knowledge from pre-test to post-test. Moreover, differences were significant on the expressive vocabulary knowledge in Spanish between the treatment and comparison groups favoring the treatment group. We found, however, a significant difference between pre-test and post-test on the English receptive vocabulary knowledge measure only. This finding suggests that a relatively simple intervention can improve young EL's vocabulary in their native language. However, transferring this skill to English might not occur naturally. For example, our data did not indicate significant gains in young EL's expressive vocabulary knowledge in English as indicated in the Barnett et al. (2007) study. A plausible explanation for the lack of effects in English could be that (a) our intervention was shorter and less structured than the instruction in the Barnett et al. study; (b) young ELs in our study might not have reached a level of vocabulary knowledge in their native language that would allow them to transfer this knowledge to English, confirming Cummins (1979) threshold level hypothesis suggesting that bilinguals need to come to a threshold in their native language to see differences in their second language; (c) vocabulary knowledge does not transfer as easily as other skills such as phonological awareness and decoding (Baker, D. L., Burns, Kame'enui, Smolkowski, & Baker, 2015; Bialystock, Luk, & Kwan, 2005); and (d) in order for transfer between two languages to occur, young EL's English vocabulary knowledge needs to be at a certain level of proficiency (Baker, D.L., Park, & Baker, 2013; Lindsey, Manis, & Bailey, 2003).

Our findings, however, corroborate the findings by Cena et al. (2013), where first grade Spanish-speaking students living in the U.S. who received a vocabulary intervention in Spanish, made significant gains in their vocabulary knowledge in Spanish. Although the students in the Cena et al., (2013) study were older than the students in our study, both interventions focused on vocabulary, and they both included Hispanic students whose native language was Spanish. Nonetheless, further research needs to be conducted to better understand the transfer of Spanish to English vocabulary knowledge, and vice versa.

Our findings also suggest that a combination of interactive conversations using storybooks, and games connected with the words in the books, are ideal to help young ELs make a mental representation of these words (Ehri, 2014). Although we were unable to examine the differential effects of the read aloud intervention and the vocabulary games, the fact that the books could be read multiple times given the richness of the pictures and the topics, and the games could also be played multiple times by shuffling the cards, provided young ELs with many opportunities to practice and see the same words. This could have accounted for the significant effects on our expressive RNA measure in Spanish, where young ELs had to produce words connected to pictures as fast as they could.

Effects of a Home and a Preschool Intervention

In general, research in education tends to prioritize the development of interventions that can be conducted in formal education settings. However, our findings, as well as previous findings (Chen, Kyle, & McIntyre, 2008; Craig-Thoreson & Dale, 1999; Dale, Crain-Thoreson, Notari-Syverson, & Cole, 1996; Lonigan & Whitehurst, 1998; Whitehurst, Arnold, et al., 1994), suggest that parents, in general, are eager to learn more about how to support their children's academic needs at home. Most parents in our study were surprised when they saw that after they started using the interactive read aloud practices and vocabulary games, their children became more engaged in book reading and in using complex words. This finding suggests that parents can improve their reading activities and communication with their children in their native language, and that preschools should consider providing them with trainings that can help them implement evidence-based strategies at home to support their children's language development.

Effects of Adult Trainings Outside School Settings

Based on our observations, and adult feedback, all parents learned and used interactive read alouds at home, and they all played the vocabulary games with their children. We believe that the success of the workshops were in part because workshops took into account Hispanic families' preference of using a more direct, scaffolded, and explicit approach when supporting their children's literacy (Gersten, Baker, & Lloyd, 2000; Perry, Kay, & Brown, 2008). In addition, when creating the intervention, we also considered the importance Hispanic families give to teach their children about values such as being respectful "respetuoso", and obedient "educado", when talking to adults or attending school (Jensen & Sawyer, 2013). Our book selection purposely included these values to foster rich conversations between adults and children. For example, *No, David* encourages dialogs about how to behave inside the home (e.g., not drawing on walls, eating meals appropriately, not jumping on the bed). The book *Corduroy* encourages conversations about how to behave outside the home (e.g., staying close to the parent in a crowded department store, not touching all the toys).

LIMITATIONS

These two studies have several limitations. First, all young ELs were assigned to the project by our community partners. Thus, although pre-test data were collected, the lack of random assignment precludes us from causally associating changes in vocabulary growth and language proficiency to the LINK intervention. Second, the sample size of the home component was small. Although both studies provide evidence that Hispanic parents are very interested in learning how to stimulate their young EL's communicative skills, further studies are necessary to confirm this assumption. Third, we assessed young ELs with our researcher-developed measures only. Additional assessments using standardized measures would be ideal to determine the generalizability and validity of our measures. Fourth, the frequency of the read alouds and the playing of the vocabulary games at home was based on parental self-report. Thus, we do not know how often parents read to their children, which tends to be a limitation in any study conducted outside an education setting. However, based on the comments by parents, the findings from our observations, and the analysis of young EL's vocabulary outcomes, we were able to conclude that children were quite familiar with the stories in the books, and they knew how to play the games suggesting that parents read the books, and played the vocabulary games on a regular basis with their children.

IMPLICATIONS FOR PRACTICE

Based on our results, the LINK intervention has the potential to significantly change preschool practices. First, the family component is an ideal addition to federally or state funded preschool programs that encourage family involvement. Few interventions exist currently in Spanish and in English that include a family component to help accelerate the vocabulary knowledge and language development of young ELs. Second, the LINK intervention is easy to implement with minimal training for parents. Third, we envision LINK as a portable intervention that can be used by any adult, independently of their physical location, which

can be very convenient for migrant families who tend to move every few months. Fourth, using an interactive read aloud approach is culturally responsive because, regardless of young EL's culture and background, these interactive strategies support the connection between young EL's personal experiences and the situations presented in the stories. Moreover, based on our findings in two distinctly different settings (i.e., one urban, one rural in different regions of the U.S.), we believe that the intervention can be implemented similarly in different communities, or in other countries. However, replication studies ought to be conducted to test this hypothesis. Finally, the emphasis of parents conducting read alouds and playing games in their native language builds on their linguistic strengths (i.e., they speak Spanish as their native language) rather than their weakness (not speaking English), increasing the opportunities for them to have rich and constructive conversations with their children.

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