Effective Early Literacy Skill Development for Young Spanish-Speaking English Language Learners: An Experimental Study of Two Methods

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Ninety-four Spanish-speaking preschoolers ($M$ age = 54.51 months, $SD = 4.72$; 43 girls) were randomly assigned to receive the High/Scope Curriculum (control $n = 32$) or the Literacy Express Preschool Curriculum in English-only ($n = 31$) or initially in Spanish transitioning to English ($n = 31$). Children’s emergent literacy skills were assessed before and after the intervention in Spanish and English. Children in the English-only and transitional groups made significant gains in their emergent literacy skills in both Spanish and English compared to the control group. The English-only and transitional models were equally effective for English language outcomes, but for Spanish-language outcomes, only the transitional model was effective. The results suggest that a targeted early literacy intervention can improve Spanish-speaking preschoolers’ preliteracy skills.

In the United States today, children whose first language is other than English face considerable challenges in becoming literate and are at high risk for reading difficulties and low academic achievement. Spanish-speaking students currently constitute the largest bilingual subgroup and are the fastest growing population of English language learners (ELLs) in public schools (Mccardle, Mele-McCarthy, Cutting, Leos, & D’Emilio, 2005). In the year 2000, roughly 3.9 million ELL children were enrolled in grades K–12 (U.S. Census Bureau, 2000), and of these, about 17% were students who spoke primarily Spanish (National Clearing House for English Language Acquisition, 2002). In 2006 at the pre-K level, Spanish-speaking ELL children represented 34% of Head Start enrollment nationwide (Administration for Children, Youth, and Families, 2007). It is estimated that the number of school-age Latino students will reach 16 million, or 25% of the total student population by 2030 (U.S. Census Bureau, 2000).

Unfortunately, ELL children tend to have poor literacy outcomes, lower academic achievement, and higher grade-repetition and school-drop-out rates than do their non-ELL peers (August & Hakuta, 1997). Data from the National Center for Education Statistics for reading in 2005 revealed that 56% of the Latino and 73% of ELL children in the fourth grade scored below the ‘‘basic’’ level, indicating that a significant number did not have at least partial mastery of the skills needed for grade-level work (Perie, Grigg, & Donahue, 2005). Given the projected increase in the number of ELL children, schools face a formidable challenge in successfully educating these children beginning in preK to ensure they will not fall behind English-speaking students in their literacy skill development and overall academic achievement.

There is strong evidence to suggest that the problems children experience in learning to read during the elementary years and beyond are related to the preliteracy skills that they bring with them from preschool and kindergarten (Lonigan, 2006;
Lonigan, Burgess, & Anthony, 2000; Shonkoff & Phillips, 2000; Wagner, Torgesen, & Rashotte, 1994). In recent years, researchers have isolated three key skills in the preschool period that are predictive of reading ability at school-age. These skills include phonological awareness (the ability to detect and manipulate sounds in oral language independent of meaning; i.e., rhyming words or blending or deleting syllables or phonemes), print knowledge (letter identification and understanding of basic print concepts), and oral language (vocabulary and grammar) (Lonigan, 2006; Lonigan, Burgess, Anthony, & Barker, 1998; Lonigan, Schatschneider, & Westberg, 2007). Young children who have more of these early literacy skills profit more from reading instruction, learn to read sooner, and read better than do children who have fewer of these skills (Whitehurst & Lonigan, 1998). Studies of the effectiveness of early interventions also support the importance of these key skills for helping struggling readers and preventing reading disabilities in school-age children. Interventions that provide systematic, explicit, and intense instruction in phonological awareness, print knowledge, and vocabulary, produce the most gains for children who are at high risk of reading difficulties and disabilities (e.g., Hatcher, Hulme, & Snowling, 2004; Lonigan, Schatschneider, Westberg, & Smith, 2007; Mathes et al., 2005; National Reading Panel, 2000; Whitehurst, Arnold, et al., 1994).

There is continuing controversy about how best to ensure the reading success of ELL children, particularly with regard to the language of instruction. Several states like California have passed ballot initiatives that restrict the educational methods and programs of instruction for ELL children. At the federal level in 2002, the Bilingual Education Act of 1968 was repealed and replaced with the English Acquisition Act, which emphasizes English rather than bilingual instruction and encourages a rapid transition to English-only instruction (Crawford, 2004). However, in the past and in other states, educators developed a variety of programs in an effort to improve ELL children’s school achievement. These programs include English-only instruction, English as a second language (ESL; instruction is provided in English supplemented with concentrated tutoring in basic English language skills during part of the day), developmental bilingual education (DBE; instruction is provided both in the students’ home-language [L1] and in English to preserve and strengthen children’s skills in their L1 as they acquire English), early-exit and late-exit transitional programs (kindergarten instruction begins in children’s L1 then switches to English in second or third grade), and two-way or dual-language programs (instruction is provided in both L1 and English at different times of the day or week; ideally on a 50/50 basis). Most bilingual programs in the United States have involved Spanish due to the large numbers of Latino students and the availability of bilingual teachers. However, there is substantial variation within these programs in terms of the method, quality, and duration of bilingual instruction and in the background characteristics of the children with whom they have been applied (i.e., their family socioeconomic status [SES], country of origin and age of arrival in the United States, and levels of proficiency in their L1 and English; August & Hakuta, 1997).

Since the 1980s, numerous studies have been conducted to determine which programs best serve the instructional needs of school-age ELL children. Early reviews of these studies favored English-only instruction (i.e., Baker & de Kanter, 1981; Rossell & Baker, 1996); whereas several meta-analyses concluded that bilingual approaches (broadly defined) (i.e., Greene, 1998; Willig, 1985) and specific programs, such as late-exit/transitional (Ramírez, Yuen, Ramey, Pasta, & Billings, 1991) or DBE (Rolstad, Mahoney, & Glass, 2005), produced better literacy outcomes for ELL children than did English-only instruction. Differences in the results of these reviews can be explained to some extent by the quality of the studies that were included in the analyses. Many of the studies had methodologically flawed research designs, few employed random assignment to treatment (e.g., bilingual instruction) and control (e.g., English-only instruction) groups, most failed to control for individual demographic factors that can influence children’s test scores, and there were significant differences in the quality of instruction in the bilingual programs and interventions. There was also variation across the reviews in how a methodologically acceptable study was defined and in the procedures that were used to classify studies and summarize the results. Because poorly designed and executed studies were often given the same weight as well-designed studies, the results were inevitably biased, and the conclusions that were drawn from any single review or meta-analysis differed from report to report.

More recently, Francis, Lesaux, and August (2006) carried out a meta-analysis to evaluate the impact of bilingual education compared with English-only instruction on ELL children’s reading achievement. They reviewed the most methodologically rigorous studies that had been cited in prior
reviews (Greene, 1998; Rossell & Baker, 1996; Slavin & Cheung, 2004; Willig, 1985) as well as some additional studies they identified in a new search of the literature. To avoid publication bias, technical reports and dissertations also were included. Analyses of the effect sizes from these studies revealed a small but significant advantage of bilingual education on English reading outcomes for school-age children, and there was no evidence that bilingual instruction hindered ELL children’s academic achievement in their L1 or in English.

Given the increasing academic focus of early childhood education and the growing number of ELL children enrolled in pre-K programs, researchers have begun to examine the advantages of bilingual approaches in preschool settings. Some researchers have suggested that children should be taught to read in the language they know best (Collier & Thomas, 1989) because it has been assumed that literacy skills developed in L1 transfer to L2 (Cummins, 1979). However, studies also have shown that children with weak L1 skills will not acquire L2 skills as quickly as those with more developed L1 skills (Cobo-Lewis, Eilers, Pearson, & Umbel, 2002; Cummins, 1984; Hakuta & Garcia, 1989). Moreover, it is uncertain whether children lose their L1 skills when attempting to acquire skills in an L2 (e.g., Wong Fillmore, 1991) or if some children may need to be taught to transfer knowledge and skills from their L1 to L2 (Jiménez, 1994).

On the other hand, some research has suggested that bilingual preschool programs can promote parallel development in both languages. For example, in two related studies, (Rodríguez, Díaz, Duran, & Espinosa, 1995; Winsler, Díaz, Espinosa, & Rodríguez, 1999) found that preschoolers who received the High/Scope Curriculum delivered in both Spanish and English had higher language assessment scores in both Spanish and English when compared to children who did not attend preschool. A follow-up analysis showed that the children who had attended preschool maintained their English proficiency a year later with no evidence of Spanish-language loss. Although these findings are noteworthy, they are confounded by the effects of preschool attendance on the children’s language skill development, and apart from the use of the High/Scope Curriculum, the study did not involve a systematic early literacy intervention.

With few exceptions, there is little published research on preschool literacy training for ELL children. However, in a study of the influence of letter-name instruction on beginning word recognition, Roberts and Neal (2004) assigned 33 Hmong-, Span-

ish-, and English-speaking preschoolers to receive either a letter-name or comprehension-focused 16-week intervention. The groups were compared using pre- and posttests of book vocabulary, story comprehension, print concepts, letter naming, writing, rhyming, and English oral proficiency. The results showed that children who received the comprehension instruction outperformed the children who received the letter/rhyme instruction on vocabulary and print concepts, whereas the children in the letter/rhyme group outperformed the children in the comprehension group on letter naming and letter writing. Additionally, children’s English oral proficiency was more strongly correlated with the linguistic comprehension domain of early literacy than with the decoding-related domain. Although, these findings suggest that small-group instruction in English enhanced some components of the linguistic comprehension and decoding-related domains of early literacy for ELL preschoolers, they are nevertheless difficult to interpret because the sample size was small, five of the children in the study were English speakers, there was a high overall and differential attrition rate, and the results did not address bilingual issues in training young children.

A few studies have attempted to examine the effects of varying bilingual approaches on preschool ELL children’s language and preliteracy skill development. However, similar to the bilingual research with school-age children, the conclusions that can be drawn from these studies are limited by the use of nonrandomized study designs, the confounding of other types of interventions (e.g., family literacy and home visiting) with the bilingual preschool instruction, inconsistency in the language of instruction regardless of group assignment, and the absence of reliable assessments of children’s Spanish-language preliteracy skills (Barnett, Yarosz, Thomas, Jung, & Blanoc, 2007; Campos & Keatinge, 1984; Ryan, 2005, 2007; Stipek, Ryan, & Alarcón, 2001).

Thus, it remains unclear what type of instructional approach (or combination) is most effective for preschool ELLs. Contributing to this problem is that there are few appropriate training programs or curricula that specifically target the development of emergent literacy skills for either English-speaking or ELL preschoolers, and children’s preliteracy skills are infrequently assessed in both their L1 and L2. Therefore, the objective of this experimental study was to contrast the impact of a transitional/bilingual mode of instruction with an English-only program on the development of Spanish-speaking ELL children’s emergent literacy skills in both
Spanish and English over a preschool year using the Literacy Express Preschool Curriculum. To the best of our knowledge, this study is the first to test directly the relative impact of an emergent literacy intervention specifically with Spanish-speaking ELL preschool children, using a randomized design. Two research questions were addressed: (a) What is the impact of the literacy intervention on Spanish-speaking ELL children’s early literacy skills in Spanish and English? and (b) Does the impact of the literacy intervention depend on the language of instruction?

The Literacy Express Preschool Curriculum (Lonigan, Clancy-Menchetti, Phillips, McDowell, & Farver, 2005) focuses on young children’s oral language, emergent literacy, basic math and science, and socio-emotional development. The curriculum is structured around 10 thematic units that are sequenced in order of complexity and sophistication of the demands placed upon children to provide consistency in the topic of conversation and coherence of the emergent literacy constructs. Within each unit there are three types of teacher-directed small-group activities that opportunities for children to attend to and practice the skills needed to develop oral language, phonological awareness, and print knowledge: (a) a shared reading method known as dialogic reading in which children learn to become the storytellers, and adult-child interaction develops into a “conversation” about picture books focusing on teaching new vocabulary, grammar, and narrative, as well as improving overall verbal fluency; (b) phonological awareness training that is sequenced along the developmental continuum of phonological sensitivity. These activities focus first on the sounds in words and begin with facilitating children’s ability to hear rhyming sounds and then continue to syllable awareness and initial sound awareness; and (c) print knowledge activities involving the manipulation of objects and puzzles that teach letter-names and letter-sound knowledge and various matching and oddity games to help children identify capital and lowercase letters.

All of the activities in the curriculum have been demonstrated in research to promote the development of emergent literacy skills more quickly than typical preschool activities (Lonigan, 2006; Lonigan et al., 2005). In addition, two studies of the Literacy Express Preschool Curriculum that were reviewed by the What Works Clearinghouse (WWC; 2007) met the WWC evidence standards and positive effects for print knowledge, phonological processing and oral language were reported.

Method

Participants

The participants were 94 Spanish-speaking ELL children (M age = 54.51 months, SD = 4.72; 43 girls who were enrolled in 10 classes in a Head Start preschool program located in an inner-city neighborhood of Los Angeles, California. Children were from homes in which Spanish was the dominant language. All of the children were born in the United States. Twenty-six percent of the parents were U.S. born of Mexican or Central American ancestry, and 74% were immigrants from Mexico (67%) or Central America (33%). Mothers’ ages ranged from 19 to 45 years (M = 30.67, SD = 5.84), their education levels ranged from less than sixth grade to college degree, and they had lived in the United States from 3 to 41 years (M = 16.40, SD = 8.32). In the 74 (80%) two-parent households, fathers’ ages ranged from 23 to 58 years (M = 34.45, SD = 7.51), their education levels ranged from less than sixth grade to college degree, and they had lived in the United States. from 4 to 44 years (M = 17.81, SD = 8.20). Of the mothers who were employed (59% of the sample), about 55% were employed in unskilled (e.g., food service, machine operators) and 45% were employed in semi-skilled (e.g., clerks, technicians, sales) positions; 85% of the fathers were employed in positions similar to the mothers.

Families were recruited during meetings held at the preschool program. The staff and parents were told that we wanted to try out some new instructional strategies for helping young Spanish-speaking children develop prereading skills and that their participation in the study was voluntary and limited to children who were not receiving resource help for speech and language delays. Of the 132 Spanish bilingual children enrolled in the program, 106 parents returned a signed consent form. Ninety-six children were randomly assigned (balancing for gender) to one of three conditions: (a) a control group (n = 32) that received their business-as-usual classroom High/Scope Curriculum only, (b) a group that received their classroom High/Scope Curriculum and the small groups from the Literacy Express Preschool Curriculum in English only (n = 31), and (c) a group that received their High/Scope Curriculum and the small groups from the Literacy Express Preschool Curriculum beginning in Spanish and then transitioning to English instruction (n = 31). Children were assigned to conditions within classrooms to avoid problems with nesting. About midway through the school
year, 2 children moved away and left the program, which made the final sample 94 children.

**Measures**

**Parent Questionnaires**

Mothers completed a family demographic questionnaire about their education, employment status, occupation, country of origin, years of U.S. residence, and language use in the home for themselves and their spouses/partners. To examine possible differences among the three groups in children’s home learning environments, mothers also completed a Home Literacy Questionnaire (Farver, Xu, Eppe, & Lonigan, 2006) in either Spanish or English. This questionnaire contained 13 items rated on a 7-point scale (1 = never, 7 = daily) that addressed the frequency of parents’ modeling of literacy activities in the home (e.g., How often do you read for pleasure? three items; alpha = .78); parents’ involvement in literacy related activities (e.g., How many times per week do you read to your child at home? five items; alpha = .76); children’s interest in literacy (e.g., How many times per week does your child ask to be read to?; five items; alpha = .80), and number of children’s books in the home.

**Child Assessments**

Children’s oral language, phonological awareness, and print knowledge were measured using the Receptive Vocabulary, Definitional Vocabulary, Blending, Elision, and Print Knowledge subtests of the Preschool Comprehensive Test of Phonological and Print Processing (P–CTOPPP; Lonigan, Wagner, Torgesen, & Rashotte, 2002), and P–CTOPPP–Spanish (Lonigan, Farver, & Eppe, 2002). The P–CTOPPP is the development version of the Test of Preschool Early Literacy (TOPEL; Lonigan, Wagner, Torgesen, & Rashotte, 2007), and the P–CTOPPP–Spanish is an adapted version of the P–CTOPPP.

**Oral language.** Children were administered two measures of oral language. Receptive vocabulary was assessed using the 40-item Receptive Vocabulary subtest. In this measure, a child is shown four pictures of objects and is asked to point to the one that best illustrates the meaning of the stimulus word presented orally by the examiner, for example, English: Point to the door; Spanish: Señala/muéstrame la puerta (English alpha = .87; Spanish alpha = .83). The 80-item Definitional Vocabulary subtest measures children’s single-word oral and expressive vocabulary. The child is shown a picture, asked to tell what it is, and to describe one of its important features or attributes. For example, the child is shown a picture of a key and asked, English: What is this? Spanish: ¿Qué es esto? After the child responds, the examiner asks, English: What is it for? Spanish: ¿Para qué es? (English alpha = .98; Spanish alpha = .97).

**Phonological awareness.** The tasks are presented in groups of three items that increase in level of difficulty from word blending and elision, syllable blending and elision, to subsyllable blending and elision. Children are asked to either point to a picture (multiple choice) or verbally generate the target word (free response). They are given two practice items and receive feedback on both practice items and the first three test items only.

The Blending subtest consists of 21 items in English and 18 items in Spanish. In the Spanish version, 9 items are multiple-choice items (with pictures) and 9 items are free-response items (without pictures), and in the English version, 9 items are multiple-choice and 12 items are free-response. Children are asked to blend words, syllables, or phonemes to create real words (e.g., English: What word do these sounds make: Bas - ket? Spanish: ¿Qué palabra forman estos sonidos: Balón - Cesto? English alpha = .86; Spanish alpha = .81). The English and Spanish Elision subtests each consist of 9 multiple-choice and 9 free-response items on which children are asked to remove phonemes, syllables, or half of a compound word, and to determine the word that remains (e.g., English: Say candy. Now, say candy without “dee”; Spanish: Di sandía. Ahora, di sandía sin san; (English alpha = .72; Spanish alpha = .66).

**Print knowledge.** The English and Spanish 36-item Print Knowledge subtests consist of sets of four picture-based, multiple-choice items measuring knowledge of print concepts (i.e., letter discrimination, letter-sound identification, and letter-name identification (e.g., English: These are pictures of a book. Which one shows the name of the book? Spanish: Estos son dibujos de un libro. ¿En cuál puedes ver el título (nombre) del libro?). The subtests also include 10 free-response, letter-name identification tasks (English: What is the name of this letter? Spanish: ¿Qué letra es esta?), and four free-response letter-sound identification tasks (English: What sound/noise does this letter make? Spanish: ¿Cómo suena esta letra/qué sonido esta letra?); (English alpha = .93; Spanish alpha = .88).

All indices of internal consistency for measures used in the study were computed on the sample of children or families from this study. For the
P–CTOPPP, these values were similar to those obtained from a larger development sample that was comprised of a nationally representative group of preschool children (i.e., alphas: Receptive Vocabulary = .89, Definitional Vocabulary = .98, Blending = .87, Elision = .86, Print Knowledge = .95).

Procedure

Child Assessments

Children’s preliteracy skills were assessed in both Spanish and English prior to the intervention in October/November and at the end in May/June by trained research assistants who were not involved in the delivery of the intervention and were blind to the children’s group assignments. The assessments were carried out on two different days, usually within the same week, and were counterbalanced by language. Each session lasted 20–30 min and was conducted individually in a quiet, familiar area of the preschool center. Children received instruction regarding the administration of all assessments in both languages. However, during the testing, the research assistants spoke to the children in the language of the assessment to avoid code switching during the sessions. If children responded in the alternate language, they were reminded of the language to use. Credit was given only if the child produced the correct answer in the language being assessed.

The Intervention

We used the core small-group activities from the Literacy Express Preschool Curriculum, and we created parallel Spanish-language versions of these activities and materials. In the small-group dialogic reading activities, the trainers used different scaffolding techniques (e.g., asking specific types of ‘‘Wh-’’ and open-ended questions, modeling, using expansions and repetitions) to encourage children to talk about the pictures in the book and learn to ‘‘tell the story.’’ Across dialogic reading sessions, both within a single book and across time, the trainers shifted their scaffolding strategies from relatively simple questions about the things pictured in the book (vocabulary development), to increasingly complex questions that required children to describe relations between things pictured in the book (grammatical development), and to those that required children to connect aspects of the book to other elements, such as intentions, internal states, plot, or personal experiences (narrative development).

The small-group phonological awareness activities included a series of word games that used picture-puzzles and other manipulatives to teach children to recognize that words are made up of smaller sound units. The sequence of exposure to these phonological awareness games followed the developmental sequence of phonological awareness. Initial activities focused on large and concrete units of sounds in words (i.e., words in compound words), then moved to smaller units of sounds in words (i.e., syllables in words), and then to smaller and more abstract units of sounds in words (i.e., onsets and rhyme units in syllables, phonemes). Trainers used the manipulatives to represent the different sound units and to provide children with a concrete representation of the task (e.g., saying the individual words in the compound word ‘‘popcorn’’). This also provided a way for trainers to model and explain the task, (e.g., separating the two pieces of a picture-puzzle that showed a tub of popcorn while saying the separate words).

The small-group print knowledge activities used pictures, letters, and writing to teach children about the alphabet (letter names and letter sounds). Initial activities focused on recognition of letters and other features of children’s names and the names of their classmates. Later activities introduced the names of letters, whereas other activities were used to teach the sounds associated with letters. These included asking children to select their name (or the first letter of their name) from a group of names, matching letters based on their name or the sound, sorting letters, and writing.

In August and September, four bilingual graduate research assistants were trained to deliver the curriculum in Spanish and English by the third author, who also served as the intervention supervisor. Following the scope and sequence contained in the curriculum guide for the small-group activities, the assistants delivered the intervention to small groups of four to five children in separate classrooms adjacent to the larger classrooms for approximately 20 min, four times per week from mid-November to mid-May (approximately 21 weeks). Children participated in different small groups depending on their availability at the time the small group was being conducted and all four of the trainers conducted both types of interventions (English-only and transitional).

Throughout the intervention, all children continued to receive whatever instructional activities were a part of their classroom curriculum, which was High/Scope in all cases. The children in the English-only group received the small-group
interventions from the Literacy Express Preschool Curriculum in English from mid-November through mid-May. The children in the transitional group received the small-group interventions from the Literacy Express Preschool Curriculum in Spanish from mid-November to mid-February (at week 9) at which point they were transitioned to English instruction. The transition took place over 3–4 weeks (12–16 training sessions). The trainers reviewed each of the lessons that had been previously given in Spanish, and delivered them in English. All lessons thereafter (i.e., beginning around week 14) were delivered in English.

Attendance was taken for each training session and attendance records were obtained for the control group children. Children in both intervention groups had an attendance rate of 86% across the sessions, and children in the control group were present for 87% of the school days. Each week, the intervention supervisor directly observed and rated the assistants’ training sessions on a 5-point scale (1 = unsatisfactory/needs improvement, 5 = very good) for three items associated with the fidelity of the intervention: carrying out the activities as prescribed, lesson content, and pacing. The fidelity ratings were averaged for each trainer and ranged from 90%–98%.

Results

Preliminary Analyzes

Mothers’ responses to the demographic and home literacy questionnaires were examined to determine whether there were differences in the children’s family backgrounds and home literacy environments across the three intervention groups. As shown in Table 1, there were no significant differences among the groups in parents’ levels of education, marital status, years of U.S. residence, or characteristics of children’s the home literacy environments. In the absence of direct observation, determining the degree to which bilingual children are exposed to Spanish or English in the home is complicated. Often, parents’ responses to surveys are more influenced by social desirability and educational expectations than by actual language exposure. To obtain a home-language environment classification for the children in this study, we examined mothers’ responses to four questions: language to which the child is typically exposed at home, mother’s language, father’s language, language commonly spoken in the home. Parents’ responses to different question about language use in the home are often inconsistent. For instance, in the responses from this study, children’s home-language exposure was sometimes marked as “primarily English” when both parents were reported to speak only Spanish. Conversely, at least one child’s home-language exposure was marked as “primarily Spanish” when the father was reported to speak only English. Consequently, the classification of children’s home-language environments should be taken as a rough estimate of the degree to which children were exposed to Spanish or English at home.

As shown in Table 1, the majority of children (55%) were exposed to roughly equal amounts of Spanish and English in their homes. Of the remaining children, 25% were exposed to more Spanish than English and 20% were exposed to more English than Spanish. Although the distribution of home-language environment did not differ significantly between the intervention groups, there was a trend for children exposed to roughly equal amounts of Spanish and English in the home to be underrepresented in the transitional group.

Because of the diverse home-language backgrounds of the children in the study, we examined individual children’s scores on the vocabulary measures in English and Spanish and their relative strengths in English or Spanish. Individual scores revealed that all children produced responses to vocabulary items in both languages, indicating that, consistent with informal observations, all of the children had some degree of bilingualism. Whereas a few children produced limited responses for the expressive Definitional Vocabulary measures in Spanish (e.g., four children had a score of 0), each of these children had Receptive Vocabulary scores in Spanish that were at or above the sample mean. To examine children’s relative strengths in English or Spanish, children’s scores on the Receptive and Definitional Vocabulary scales were summed and $z$ scored. Using a relatively liberal criterion, differences in $z$ scores for English and Spanish vocabulary revealed that only three children had Spanish vocabulary skills that were significantly lower than their English vocabulary skills (i.e., $z > 2.58$, $p < .01$), and only one child had English vocabulary skills that were significantly lower than their Spanish vocabulary skills (i.e., $z > 2.58$, $p < .01$).

Analyses of covariance (ANCOVAs) were conducted to compare children’s baseline scores (Time 1) on the five preliteracy skills in each language by intervention group (control, English-only, and transitional) using age at Time 1 as a covariate. Descriptive statistics for the five measures in
English and Spanish for each intervention group at baseline are shown in Table 2. There were no statistically significant group differences in children’s scores on the English- or Spanish-language pre literacy skill assessments (all $p$s > .10).

Given the trend for unequal distribution of children’s home-language environment between intervention groups, additional analyzes were conducted on pretest scores using both intervention group and home-language environment as factors. Across the five measures, there were no statistically significant interactions between home-language environment and intervention group for the English measures (all $p$s > .10) or for four of the Spanish measures ($p$s > .43). On the Spanish Elision task, there was a significant interaction between intervention group and home-language environment, $F(4, 84) = 2.74, p = .034$, which reflected the fact that in the control group, children with home-language environments classified as “more English” scored higher than children in home-language environments classified as “more Spanish” or “equal Spanish/English.”

There is no clear reason for this pattern of results (i.e., home-language environment having opposite effects on scores depending on intervention group assignment), which suggests that it was a spurious finding either due to the small numbers of children in each cell of the $3 \times 3$ analysis or due to atypical scores for a small number of children. In fact, one child in the control group whose home-language environment was classified as “more English” had a very high score on Spanish Elision despite a lower than average score on Spanish Blending. Given the potential unreliability of home-language environment classification and the small numbers of children in each cell, we believe it inadvisable to interpret such findings.

Additionally, there was a main effect of home-language environment on the Receptive Vocabulary measures in English, $F(2, 84) = 3.43, p = .037$, and Spanish, $F(2, 84) = 3.27, p = .043$, and on the Definitional Vocabulary measures in English, $F(2, 84) = 5.91, p = .004$, and Spanish, $F(2, 84) = 10.09, p < .001$. In all cases, children’s scores on the measures increased relative to their home-language...
exposure (e.g., children whose home-language environments were classified as “more Spanish” had higher Spanish-language scores than children in the other two home-language environment classifications). The main effect for intervention group continued to be nonsignificant for all 10 pretest variables (all $p > .17$).

Comparison of Children’s Preliteracy Skills by Intervention Group at Posttest

Descriptive statistics for the five measures in English and Spanish for each intervention group at posttest, as well as effect sizes for posttest scores, are shown in Table 3. ANCOVAs were conducted to compare scores on the five preliteracy skills in each language by group (control, English-only, and transitional) using both age and the Time 1 scores on the same measure as covariates. Significant effects within the ANCOVAs were followed with a set of planned orthogonal contrasts: First, each intervention group was compared to the control group, and second, to examine whether the impact of the literacy intervention depended on the language of instruction, the two intervention groups were compared to each other.

As shown in Table 3, there were significant differences among the groups for children’s scores on the English language skill assessments for Receptive Vocabulary, $F(2, 93) = 9.16$, $p < .001$; Definitional Vocabulary, $F(2, 93) = 2.38$, $p < .01$; and Print Knowledge, $F(2, 93) = 6.26$, $p < .01$; and Print Knowledge, $F(2, 93) = 18.36$, $p < .001$, measures. The two-group comparisons revealed that the children in both the English-only group and the transitional group had significantly higher English language assessment scores for Receptive Vocabulary, Definitional Vocabulary, Blending, Elision, and Print Knowledge than did the children in the control group (all $p < .01$), and that the children in the transitional group had higher Definitional Vocabulary and Print Knowledge scores than did the children in the English-only group ($p < .01$).

For children’s scores on the Spanish-language assessments, ANCOVAs revealed that there were significant group differences for Receptive Vocabulary, $F(2, 93) = 9.16$, $p < .001$; Definitional Vocabulary, $F(2, 93) = 9.64$, $p < .001$; Blending, $F(2, 93) = 7.12$, $p = .01$; Elision, $F(2, 93) = 6.75$, $p = .002$; and Print Knowledge, $F(2, 93) = 8.09$, $p < .001$, subtests (see Table 3). The two-group comparisons revealed that the children in the transitional group had higher scores for Receptive Vocabulary, Definitional Vocabulary, Elision, and Print Knowledge subtests than did the children in the control group or the children in the English-only group ($p < .01$), and that there were no statistically significant differences between scores for the children in the English-only group and the children in the control group on any Spanish-Language outcome (all $p > .31$).

Given the differences in children’s language skills dependant on their home-language environment classification, we conducted an additional set

Table 2

Descriptive Statistics for Control, English-Only Instruction, and Transition Spanish-to-English Instruction for English- and Spanish-Language Measures at Baseline

<table>
<thead>
<tr>
<th>Outcome variable</th>
<th>Control Adj. M (SD)</th>
<th>English-only Adj. M (SD)</th>
<th>Transitional Adj. M (SD)</th>
<th>$F$ for group contrast</th>
</tr>
</thead>
<tbody>
<tr>
<td>English language outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive vocabulary</td>
<td>22.63 (6.26)</td>
<td>23.41 (7.33)</td>
<td>24.32 (5.45)</td>
<td>.54&lt;sup&gt;ns&lt;/sup&gt;</td>
</tr>
<tr>
<td>Definitional vocabulary</td>
<td>26.78 (17.28)</td>
<td>30.08 (18.00)</td>
<td>35.69 (13.22)</td>
<td>2.38&lt;sup&gt;ns&lt;/sup&gt;</td>
</tr>
<tr>
<td>Blending</td>
<td>9.62 (3.36)</td>
<td>9.71 (4.34)</td>
<td>10.10 (4.22)</td>
<td>.12&lt;sup&gt;ns&lt;/sup&gt;</td>
</tr>
<tr>
<td>Elision</td>
<td>4.23 (1.91)</td>
<td>5.29 (2.72)</td>
<td>5.36 (2.89)</td>
<td>1.98&lt;sup&gt;ns&lt;/sup&gt;</td>
</tr>
<tr>
<td>Print knowledge</td>
<td>10.29 (6.84)</td>
<td>11.52 (6.99)</td>
<td>13.68 (6.02)</td>
<td>2.18&lt;sup&gt;ns&lt;/sup&gt;</td>
</tr>
<tr>
<td>Spanish language outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive vocabulary</td>
<td>21.80 (5.34)</td>
<td>20.26 (4.47)</td>
<td>19.53 (6.67)</td>
<td>1.35&lt;sup&gt;ns&lt;/sup&gt;</td>
</tr>
<tr>
<td>Definitional vocabulary</td>
<td>17.91 (14.61)</td>
<td>22.87 (17.34)</td>
<td>17.76 (15.99)</td>
<td>1.01&lt;sup&gt;ns&lt;/sup&gt;</td>
</tr>
<tr>
<td>Blending</td>
<td>8.26 (3.09)</td>
<td>8.22 (2.98)</td>
<td>8.40 (4.19)</td>
<td>.02&lt;sup&gt;ns&lt;/sup&gt;</td>
</tr>
<tr>
<td>Elision</td>
<td>3.66 (1.73)</td>
<td>4.27 (2.14)</td>
<td>3.38 (1.77)</td>
<td>1.79&lt;sup&gt;ns&lt;/sup&gt;</td>
</tr>
<tr>
<td>Print knowledge</td>
<td>7.99 (5.50)</td>
<td>9.99 (5.80)</td>
<td>10.55 (7.86)</td>
<td>1.46</td>
</tr>
</tbody>
</table>

Note. $N = 94$; Adj. $M =$ adjusted mean score (adjusted for chronological age).<sup>ns</sup> $p > .10$. 

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of analyzes that used children’s scores on both the English and Spanish versions of the Receptive Vocabulary and Definitional Vocabulary subtests in addition to children’s ages and Time 1 scores on the target outcome measure as covariates (i.e., three additional covariates for the Receptive and Definitional Vocabulary outcomes; four additional covariates for the Elision, Blending, and Print Knowledge outcomes). The results of these analyzes replicated the results of the analyzes reported in Table 3.

Effect sizes for the comparison of the English-only group to the control group for English language (.34, .37, .37, .59, and .40 for Receptive Vocabulary, Definitional Vocabulary, Blending, Elision, and Print Knowledge, respectively) and Spanish-language (.49, .24, .47, .47, and .45 for Receptive Vocabulary, Definitional Vocabulary, Blending, Elision, and Print Knowledge, respectively) outcomes were similar to those obtained without the additional covariates and retained a similar pattern of statistical significance. These findings indicate that the pattern of significant effects reported in Table 3 was not affected by children’s language status.

Another set of analyzes examined these additional covariates and children’s home-language environment classification. With one exception, there were no statistically significant interactions between intervention group and home-language environment for children’s outcomes on the five measures in English \( (p > .08) \) or Spanish \( (p > .17) \). With one exception, there were no main effects for home-language environment classification, but on the Blending measure in English, there was a significant interaction of intervention group and home-language environment classification, \( F(4, 79) = 2.65, p = .04, \) which was the result of lower scores for children classified as “equal Spanish/English” in the English-only intervention group. Additionally, on the Definitional Vocabulary measure in English, there was a main effect of home-language environment classification, \( F(2, 80) = 3.67, p = .03, \) which was the result of children with home environments

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Table 3

Descriptive Statistics and Effect Sizes for Control, English-Only Instruction, and Transition Spanish-to-English Instruction for English- and Spanish-Language Measures at Posttest

<table>
<thead>
<tr>
<th>Outcome variable</th>
<th>Intervention group</th>
<th>Effect sizes*</th>
</tr>
</thead>
<tbody>
<tr>
<td>English language outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive vocabulary</td>
<td>28.33 (5.63)</td>
<td>30.62 (5.85)</td>
</tr>
<tr>
<td>Definitional vocabulary</td>
<td>41.23 (16.85)</td>
<td>47.45 (12.96)</td>
</tr>
<tr>
<td>Blending</td>
<td>12.69 (3.51)</td>
<td>14.31 (3.33)</td>
</tr>
<tr>
<td>Elision</td>
<td>6.37 (1.51)</td>
<td>7.96 (3.24)</td>
</tr>
<tr>
<td>Print knowledge</td>
<td>16.61 (7.96)</td>
<td>20.11 (9.01)</td>
</tr>
<tr>
<td>Spanish language outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receptive vocabulary</td>
<td>23.79 (4.03)</td>
<td>24.58 (4.07)</td>
</tr>
<tr>
<td>Definitional vocabulary</td>
<td>25.74 (15.97)</td>
<td>25.90 (19.30)</td>
</tr>
<tr>
<td>Blending</td>
<td>10.59 (3.02)</td>
<td>11.13 (2.49)</td>
</tr>
<tr>
<td>Elision</td>
<td>5.52 (1.32)</td>
<td>5.94 (1.75)</td>
</tr>
<tr>
<td>Print knowledge</td>
<td>12.83 (6.28)</td>
<td>13.14 (6.62)</td>
</tr>
</tbody>
</table>

Note: \( N = 94; \) Adj. M = adjusted mean score; pretest scores on adjusted for chronological age and pretest score on same measure; C = control group, E = English-only group, T = transitional group.

*aStudent-level effect sizes computed on adjusted means.

\*\( p < .05 \) \,**\( p < .01 \) \,**\( p < .001 \).
where more English was spoken having higher scores than children with home language environment where less English was spoken. As noted previously, the small number of children in each cell of this $3 \times 3$ analysis argues against interpretation of the single interaction. Moreover, relative to the highly consistent pattern of results for the intervention, there was no pattern of findings to suggest that children's home-language classification moderated the impacts of the intervention.

**Comparison of Children's Skill Levels Relative to National Norms by Intervention Group**

To provide a benchmark by which to compare the impact of the interventions, children’s responses on the English Language Pre-CTOPPP measures were converted to the TOPEL (a nationally normed and validated test of early literacy skills; Lonigan, Wagner, et al., 2007) versions of these subtests for Definitional Vocabulary, Phonological Awareness, and Print Knowledge. The resultant standard scores allowed a determination of children’s skill levels, relative to national norms, before and after the intervention. The mean standard scores on these three measures for each intervention group at pretest and posttest, as well as effect sizes for posttest scores, are shown in Table 4. Results of ANCOVAs and follow-up contrasts using the standard scores paralleled the findings reported above for the subtests of the Pre-CTOPPP. As also can be seen in the table, mean scores for children in all groups on the Definitional Vocabulary and Phonological Awareness subtests were in the below average range at pretest (i.e., standard score < 85), and mean scores for the Print Knowledge subtest were in the low average to below average range at pretest. Following the intervention, the mean scores of children in both the English-only and transitional groups on all three subtests were in the average range (i.e., standard score > 85). Although there was a slight increase in scores for children in the control group from the beginning to the end of the preschool year, their mean scores on the Definitional Vocabulary and Phonological Awareness subtests remained in the below average range.

**Discussion**

The results of this study indicate that the emergent literacy skills of Spanish-speaking ELL preschool children can be significantly enhanced, relative to traditional early childhood education, using a small-group emergent literacy intervention. Both instructional approaches, English-only instruction and transitional Spanish-to-English instruction, were designed to enhance children’s skills in the domains of oral language, phonological awareness, and print knowledge, and there were substantial effects on each of these outcomes. Consistent with prior interventions carried out with preschool children whose first language is English, the results of the current study show that it is possible to have significant positive impacts on each of the three key domains of emergent literacy, oral language, print knowledge, and phonological awareness (e.g., Lonigan, 2006; Lonigan, Farver, Phillips, & Menchetti, 2008; Lonigan, Wilson, Purpura, & Menchetti, 2008). These results also indicate that even high quality traditional early childhood educational environments do not provide an optimal educational experience for children who are at risk of problems with acquiring reading skills.

The impact of the intervention depended to some extent on the language of instruction. For

<table>
<thead>
<tr>
<th>TOPEL subtests</th>
<th>Pretest for group</th>
<th>Posttest for group</th>
<th>Effect sizes&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control Adj. M (SD)</td>
<td>English Adj. M (SD)</td>
<td>Transitional Adj. M (SD)</td>
</tr>
<tr>
<td></td>
<td>Control Adj. M (SD)</td>
<td>English Adj. M (SD)</td>
<td>Transitional Adj. M (SD)</td>
</tr>
<tr>
<td></td>
<td>E vs. C T vs. C T vs. E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Definitional vocabulary</td>
<td>74.32 (17.47)</td>
<td>80.61 (17.70)</td>
<td>87.61 (14.70)</td>
</tr>
<tr>
<td>Phonological awareness</td>
<td>78.94 (10.10)</td>
<td>82.57 (11.19)</td>
<td>88.45 (11.67)</td>
</tr>
<tr>
<td>Print knowledge</td>
<td>87.61 (10.50)</td>
<td>92.21 (13.36)</td>
<td>102.42 (10.29)</td>
</tr>
</tbody>
</table>

Note. N = 94; TOPEL = Test of Preschool Early Literacy; Adj. M = adjusted mean score; C = control group, E = English-only group, T = transition group. Pretest scores on TOPEL adjusted for chronological age; posttest scores on TOPEL adjusted for chronological age and pretest score on same measure.

<sup>a</sup>Student-level effect sizes computed on adjusted means.

*p < .05. **p < .01. ***p < .001.
children’s English language outcomes, both the English-only and the transitional Spanish-to-English models were both effective when compared to the control group; however the transitional group outperformed the English-only group on English Definitional Vocabulary and English Print Knowledge. For the Spanish-language outcomes, only the transitional model was effective. Although children in the English-only group made substantial gains in their English language skills, they performed no worse than and no better than children in the control group in their Spanish-language skills. Consequently, these data provide no evidence of a negative effect on children’s skills in Spanish for the English-only instructional model, relative to the preschool environments to which these children are typically exposed.

There has been significant debate in the educational literature concerning the issue of language of instruction for ELL children. Much of this debate has been based on ideology and not on empirical data. A recent meta-analysis of studies carried out with school-age children addressing the question of language of instruction reported positive effects for bilingual education on children’s English reading outcomes (Francis et al., 2006). The results of the current study are somewhat consistent with this meta-analysis as the transitional model of instruction did enhance children’s English language print knowledge and definitional vocabulary scores relative to the English-only model; however only the children who received some instruction in Spanish showed gains on the Spanish-language outcomes. Hence, there is only partial support in these results for claims that developing skills in L1 will result in better developed skills in L2 (e.g., Snow, Burns, & Griffin, 1998). Print knowledge skills seem to be highly related across alphabetic languages and thus may be more easily transferable. For example, in a recent study of Spanish-speaking kindergarten ELL children, Lindsey, Manis, and Bailey (2003) reported current and longitudinal correlations ranging from .44 to .66 for measures of language print knowledge across Spanish and English.

In contrast to our results for definitional vocabulary, prior research on the development of oral language in Spanish-speaking ELL children does not suggest co-development across Spanish and English. For instance, Peña, Bedore, and Zlatic-Guinta (2002) found that only about 30% of ELL children’s vocabulary overlapped in English and Spanish, whereas about 70% of their vocabulary was unique to either English or Spanish. Others have reported similar findings (e.g., Bedore, Peña, García, & Cortez, 2005; Pearson, Fernández, & Oller, 1993). Clearly, ELL children enter preschool programs with varying degrees of proficiency both in their Spanish-language skills and in their level of English oral proficiency. Some researchers have contended that for cross-linguistic transfer to occur, children need a strong foundation in their L1 (e.g., August et al., 2006). Many of the children in the current study can be categorized as circumstantial bilinguals (Kester & Peña, 2002; p. 4). That is, their circumstances (i.e., a Spanish-speaking home environment and an English-speaking preschool program) require them to use two languages with different vocabulary content for each setting. In the home, their conversations are likely to concern family activities, whereas academic-related discussions are characteristic of their preschool settings. Therefore, these ELL children may have had few opportunities to develop preliteracy skills in Spanish. At the same time, because these children were born in the United States and have had some exposure to ESL from television, from older siblings, and in their neighborhoods, but perhaps with few opportunities to use it, it is possible that children in both the English-only and the transitional group (who also received instruction in English), were able to make rather rapid progress in English because their comprehension skills had been developed. Also, because the preschool program was an English-only environment, children had received instruction in English for several weeks before the study began. However, most researchers would agree that it is rare for bilinguals to have both languages in balance, as one language quickly predominates in use and exposure (Bialystok, 2001). Regardless of L1 use in the home, children’s first language may not develop as well as their second language particularly if their literacy skills are not well developed in their L1 (McLaughlin, 1995).

Some studies have indicated that Spanish-speaking sequential bilingual children “transfer” their phonological awareness from L1 to L2 (i.e., Cisero & Royer, 1995; Dickinson, McCabe, & Clark-Chiarelli, 2004; Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Quiroga, Lemos-Britten, Mostafapour, Abbott, & Beringer, 2002). There is no strong reason to expect, however, that “transfer” should be a unidirectional phenomenon only from L1 to L2. In this study, there was no evidence for a transfer of children’s phonological awareness skills from English to Spanish. That is, children who received instruction in English only did not show gains in phonological awareness skills measured in Spanish. Perhaps if a delayed posttest had been collected (i.e.,
3–6-months), the Spanish-language phonological awareness skills of children in the English-only instructional condition would have shown increases relative to the children in the control group. Alternatively, it is possible that the transfer of these skills takes place later as children’s skill levels develop throughout kindergarten and first grade, or it may be necessary to explicitly program instruction to facilitate the transfer of skills. Regardless, our findings call into question the ease with which “transfer” occurs and may have important instructional implications depending on whether time or explicit programming is what is required for transfer to occur.

It is important to note that the transitional model of instruction did not impede children’s acquisition of skills in English. However, it is also important to note that the transition was relatively quickly occurring over a period of months, rather than years as is more typical of “transitional” models. Hence, our intervention was not like the typical transitional model used in elementary school grades, and thus, may have produced different effects. Yet, these results are consistent with the findings from Barnett et al.’s (2007) evaluation of a dual-language preschool program. The dual-language approach supported stronger Spanish-language vocabulary development at no cost to English language development and literacy in both monolingual English- and Spanish-speaking children.

There was no Spanish-only instructional model included in this study. However, based on the results for the English-only instructional model, it would be expected that the immediate posttest results would have shown positive effects on the Spanish-language outcomes but not on the English language outcomes. This finding warrants further study; however, given the current attitudes towards bilingual education in general, it may be difficult to design a project where children receive any curriculum entirely in the Spanish-language.

In summary, these results suggest that the answer to the question concerning the relative benefits of language of instruction, at least for preschool children, depends on the desired outcome. If the goal is to help children develop English language preliteracy skills, the language of instruction—as long as it includes a substantial component of English language instruction—may not be important. In this study, both approaches were effective. However, if bilingualism is viewed as an asset in terms of promoting advanced metacognitive, meta-linguistic, and conceptual development, and higher levels of cognitive attainment (August & Hakuta, 1997; Bialystok, 1997; Hakuta & Garcia, 1989) and the goal is to develop and maintain bilingualism among ELL children, then young children may need to be given direct instruction to develop their preliteracy skills in their first language as well as in English.

The results of this study provide support for the benefit of intensive small-group instruction for Spanish-speaking ELL children’s early literacy skill development. These findings are consistent with other interventions carried out with elementary school children showing that the combination of classroom instruction and supplemental training/intervention helped at-risk monolingual (Mathes & Denton 2002; Mathes et al., 2005) and Spanish-speaking children make progress in developing English literacy skills and overcoming reading difficulties (Gunn, Smolkowski, Biglan, & Black, 2002; Neal & Kelly, 1999; Quiroga et al., 2002). To our knowledge, this is the first study to test such an intervention with Spanish-speaking ELL preschool children and that used a design that allowed for causally interpretable findings.

Because the focus of this study was primarily the basic practical and theoretical questions concerning the possibility of increasing ELL children’s learning in the key emergent literacy domains and the extent to which language of instruction moderated the results, the study does not address the scalability of the intervention approach. Whereas it is an atypical early childhood education practice to have focused, teacher-directed small groups, such an approach has a number of significant benefits, including the ability to provide more individualized instruction, giving teachers a greater opportunity to observe individual children’s strengths and weaknesses, and providing a context for scaffolding instructional activities (Phillips, Clancy-Menchetti, & Lonigan, 2008). In other work, we have demonstrated that traditional early childhood educators are able to implement successfully the larger curriculum from which the small-group activities used in this study were adapted (e.g., Lonigan, Farver, et al., 2008), and other studies have shown the ability to scale similar small-group interventions in traditional early childhood settings (e.g., Whitehurst & Lonigan, 1998; Whitehurst, Arnold, et al., 1994; Whitehurst, Epstein, et al., 1994). Together, these studies suggest that is both possible and desirable to take these types of small-group instruction in key emergent literacy areas to scale.

The results obtained with either the English-only or the transitional approaches were not only statistically significant, they were practically important. Effect sizes for children in the English-only condition ranged from .41 to .63, and effect sizes for
children in the transitional condition ranged from .53 to .94. All of these effects were in the moderate to large range as defined by Cohen (1988). Examination of the TOPEL standard scores for the English language measures of Definitional Vocabulary and Phonological Awareness revealed that children in all three groups started the preschool year with scores that were below average. Children in both the English-only and transitional groups ended the preschool year with scores that were within the average range, whereas children in the control group continued to have scores that were below average. A similar pattern was seen for TOPEL Print Knowledge scores, except that children began the kindergarten year with low average scores, and children in both the English-only and transitional groups ended the preschool year with scores that were at or above the 40th percentile.

We focused on Spanish-speaking children from low-income families who were attending Head Start because they are known to be at high risk for later literacy problems, and the preschool years represent a unique period of opportunity to make a significant impact on children’s literacy development. The intervention was short in duration, only 20 min a day, four times per week. However, the use of short, but targeted lessons is consistent with conclusions made by the National Reading Panel (2000) for phonological awareness interventions and therefore may be age appropriate for 4- and 5-year-old children.

In designing our study, we attempted to address the shortcomings of prior research in this area. For example, we assessed children’s preliteracy skills before and after the intervention in both Spanish and English, using instruments that tapped these early skills. We used a curriculum that was specifically designed to enhance the three key literacy outcomes. Perhaps most importantly, this was a well-controlled randomized experiment in which there were no analytic problems and no confounding between the intervention and other factors like school, classroom, teacher, and so forth. Finally, we examined possible preexisting differences in children’s skill levels and collected information about family backgrounds and aspects of home literacy environments.

Despite these positive attributes, however, it should be kept in mind that these results may be relevant only to programs that serve Spanish-speaking ELL children. Although all of the children in this study showed evidence of bilingualism (i.e., they had measurable skills in both English and Spanish), the children came from a wide array of home backgrounds that varied on, among other things, the degree to which the children were exposed to English versus Spanish. Because we did not intend to study variation along this dimension at the outset of the study, we did not attempt to recruit children so that there would be equal representation of these different patterns of home-language environments (e.g., more English, equal Spanish/English, more Spanish). The data to describe these home-language environments were not available at the outset of the study; therefore, they could not be used as a blocking variable in our assignment of children to groups. Although we found no consistent evidence that the home-language environment of the children moderated the impacts of the interventions, such a question is worthy of additional study because it may be that different instructional models are differentially effective depending on the home-language environments of preschool children. Additionally, it is unfortunate the children in this study were not followed up longitudinally. Follow-up results are needed to provide information regarding the long-term effects of the training provided, particularly with regard to the later possible cross-linguistic transfer of skills as well as the transfer of gains in emergent literacy skills to children’s later reading skills. Future studies should incorporate a longitudinal design to assess the development of preliteracy skills and reading. Finally, given the important practical implications of this experimental study, it is important to reiterate that this work involved a small-group pull-out intervention delivered by research assistants. Therefore, the scaling up of this type of intervention to other programs would require attention to fidelity of implementation.

References


