

The Role of Instruction in the Development of Reading and Writing Skills in Spanish as a Heritage Language during Childhood

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ABSTRACT

The present study examines the role of instruction in the development of reading and writing skills in Spanish as a heritage language during childhood. Sixty-six (n=66) Spanish heritage speakers in K-4th grade participated in an 18-week Spanish intervention. The curriculum included the development of phonological awareness, reading fluency and accuracy as well as vocabulary via cognate instruction. Undergraduate students majoring in Spanish conducted the intervention as part of a service-learning program. Standardized measures given to the students before and after the intervention included phonological awareness, receptive vocabulary knowledge, word reading accuracy, and word reading fluency. The treatment group was compared to a group of twenty-five children (n=25) who did not participate in the program. The two groups were matched by age and non-verbal reasoning. Results from pre and post-tests showed significant gains for the treatment group in vocabulary growth, word reading fluency and word reading accuracy. Phonological awareness developed significantly for both groups, but there was no advantage for the experimental group. Overall, the intervention was effective at promoting both Spanish language and literacy skills (Rhoades, 2009). Contextualized and explicit instruction on word reading and decoding, as well as oral language and vocabulary knowledge in Spanish, helped Spanish heritage learners develop academic language and literacy skills in their first/minority language. Furthermore, the results provide strong evidence supporting the efficacy of a service-learning program aimed at facilitating the development of literacy skills among child heritage language learners.

Keywords: *Literacy instruction, child heritage speakers of Spanish, child bilingual development*

1. INTRODUCTION

Previous research on child bilingual acquisition and biliteracy development has provided ample evidence of the advantages of bilingualism from linguistic (Bialystok, McBride-Chang, & Luk, 2005; Deacon, Wade-Woolley & Kirby, 2007; Dressler, Carlo, Snow, August, & White, 2011), cognitive (Bialystok, 2001) and educational perspectives (Chen, Ramirez, Luo, Geva, & Ku, 2012; Cummins, 1979). Recently, researchers have primarily focused on the psycholinguistic nature of heritage language (HL) grammars, and the difficulties that child and adult HL speakers of Spanish face when learning their home language (Cuza & Pérez-Tattam, 2016; Miller & Cuza, 2013; Montrul, 2008; Polinsky, 2011). The term ‘heritage speakers’ refers to second or third generation immigrants who learn a minority language L1 during early childhood at home or in another natural context, while a majority language is spoken in the community (Valdés, 2001). Hispanics are the largest and fastest-growing minority group in the United States today

(approximately 57.5 million, US Census Bureau, 2016), with the majority of the Hispanic population (63%) being U.S.-born (Pew Research Center, 2016). However, with a few exceptions (Baker, 2006; Cummins, 1981; Howard & Sugarman, 2007), the potential link between bilingualism theory and HL literacy development remains underexplored. Moreover, it is unclear the role that service learning programs play as a vehicle in the implementation of a pedagogical intervention grounded in bilingualism theory and research.

Following previous work, we examine the role of instruction in the development of phonological awareness, vocabulary growth, and reading fluency and accuracy in heritage Spanish among Spanish-English bilingual children of Mexican descent. Sixty-six Spanish-heritage speakers in K-4th grade participated in an 18-week intervention implemented as part of the literacy program *Aprendiendo a Leer* [Learning to Read]. In Section 2, we summarize previous research on the cognitive and educational advantages of child bilingual acquisition as well as previous research on biliteracy education. Section 3 discusses the *Aprendiendo a Leer* program, which served as a vehicle to conduct the intervention. Section 4 presents the study and the results, and Section 5 provides the discussion and conclusions.

2. EARLY CHILD BILITERACY DEVELOPMENT

The acquisition of two languages from birth has been a topic of much interest for psychologists, linguists and educators for decades (De Houwer, 1990; Genesee, 1989; Meisel, 2001; Volterra & Taeschner, 1978). Researchers have debated whether bilingual children are able to differentiate two language systems from early on, and the extent to which one language might interfere with the other to the extent of causing developmental delays when compared with monolingual children of the same age. More recently, researchers have also examined the linguistic, cognitive and educational advantages of child bilingual development and the effects of early literacy interventions in both the minority and the dominant language (Bialystok, 2001; Chen, Xu, Nguyen, Hong & Wang, 2010; Cummins, 1991).

In the same way, Hakuta & D'Andrea (1992) countered the belief that the maintenance of the heritage or home language would hinder the acquisition of the dominant language in minority-language speakers. They found that English language proficiency was high and relatively stable among teenagers who had resided in the U.S. for about 8 years regardless of how well they spoke Spanish. Their findings show that the acquisition of a minority language is by no means detrimental to second language (L2) acquisition. In fact, acquiring a HL during childhood and fostering bilingual development from a young age has significant cognitive advantages, including superior inhibitory skills (the ability to discern important from non-important information), better working memory, attention, and problem-solving skills (Bialystok, 2001; Bialystok, Craik, Klein, & Viswanathan, 2004). Furthermore, in the case of immigrant parents in the U.S. with low proficiency in English, difficulties in the acquisition of the home language by their children and consequent dominant language acculturation often lead to parent/child communication problems, decreased levels of parental authority, and overall family cohesion issues (Chapman & Perreira, 2005; Driscoll & Torres, 2013; Smokowski & Bacallao, 2011; Valdez, Padilla, Moore & Magaña, 2013).

The development of literacy skills in the minority language is beneficial not only in the maintenance and development of the L1 but also in the acquisition of literacy skills in the dominant language via skill transfer (August & Hakuta, 1997; Cummins, 1979, 2000; Durgunoglu, 1998). Research suggests that the stronger and more developed L1 literacy skills are before L2 immersion, the easier it will be to acquire literacy skills in the dominant language due to L1 facilitation. For example, Muljani, Koda and Moates (1998) found that phonological awareness transfer from the L1 to the L2 facilitates L2 word recognition if a child's L2's alphabet is similar to their L1's, as in the case of Spanish and English. Similarly, a number of studies demonstrated that Hispanic children can use L1 lexical knowledge to acquire new English words because Spanish and English have a large number of shared words (e.g., Chen, Ramirez, Luo, Geva & Ku, 2012). Cross-language transfer of linguistic and cognitive skills between the L1 and L2 is especially relevant to English language learners (ELLs) of Hispanic background in the U.S., who often face greater economic, political and academic challenges evidenced in lower literacy outcomes and higher school dropout rates when compared to non-English language learners (Aud, Hussar, Kena, Bianco, Frohlich, Kemp, & Tahan, 2011; August & Hakuta, 1997; Fry, 2003; Hemphill & Vanneman, 2011).

Previous research also documents significant advantages in the development of reading skills in Spanish after an early reading intervention (Rhoades, 2009; Vaughn et al., 2006), as well as the transfer of Spanish reading skills into English (August & Hakuta, 1997). Vaughn et al. (2006) examined the effectiveness of an early reading intervention with 69 Spanish-speaking ELLs at risk for reading difficulties in the first grade. Results found that the children in the treatment group performed significantly higher than the comparison group in nearly all measures, including phonemic awareness, word reading, reading comprehension, fluency, and overall language ability in Spanish. Building on these earlier studies, we examined the effects of an 18-week literacy intervention in Spanish geared towards the development of Spanish reading and writing skills in Spanish HL children born and raised in the U.S., an area of research so far underexplored. The vehicle for this intervention was the service-learning program *Aprendiendo a Leer* [Learning to Read]. We discuss the goals of this program and our research questions and hypotheses in what follows.

3. THE APRENDIENDO A LEER PROGRAM: A SERVICE LEARNING APPROACH TO BILINGUAL EDUCATION

A current challenge for educators and researchers interested in early biliteracy development is to find a way to successfully implement a teaching intervention in the HL within the community. Given the time constraints and core standards imposed by most public school systems, it is difficult for school boards to accommodate the instruction of foreign languages during regular class time at the elementary school level. Unless there are long-established bilingual immersion programs in the community, teaching a HL to ELLs during regular class time is not always feasible.

To circumvent these constraints, we developed and implemented the after-school program *Aprendiendo a Leer*. The program's goal is two-fold: firstly, to enhance and develop literacy skills in Spanish as an HL among Spanish/English bilingual children aged 5 to 10 years. This development is fundamental to arrest the attrition of and support the acquisition of the HL

(Spanish) and arrest HL attrition during childhood, which often results from reduced input and use of the minority language (Bylund, 2009; Cuza & Miller, 2015; Polinsky, 2011). Attrition refers to the loss of L1 skills (HL skills in this case) due to intense contact and use of an L2 (e.g., English in the U.S.) and reduced patterns of L1 use and exposure. The bilingual speaker loses sensitivity to what is acceptable or not in her mother tongue (Bylund, 2009; Cuza, 2010; Montrul, 2002; Schmid, 2002). Research shows that minority-language-speaking children often have few opportunities to develop literacy or a knowledge of formal registers in their HL, leading to differences from varieties spoken by monolinguals (Benmamoun, Montrul & Polinsky, 2013; Carreira & Kagan, 2011; Said-Mohand, 2010). The program's second goal was to conduct much needed linguistic research on the development of HL Spanish during childhood and on the educational and linguistic advantages of early bi-literacy development.

Around 40 bilingual children participate in the program every year. Most of the children are from Mexican families living in the American Midwest. The program runs once a week for one hour during the entire academic year. Undergraduate students majoring in Spanish conduct the teaching intervention with a focus on the development of reading and writing skills. The students sign a service-learning contract and are required to dedicate two hours per week to the program, including prep time. Most students who volunteer in the program are taking their 5th or 6th semester of Spanish language instruction, and some of them are Spanish HL learners themselves. This helps to establish a stronger connection with the children and families (Leeman, Rabin & Román-Mendezoa, 2011a, 2011b).

3.1. Research Questions

Following previous work in Spanish-English bilingual education, we posed the following research questions:

RQ1: To what extent does a Spanish literacy intervention promote the development and maintenance of Spanish as an HL during elementary school?

RQ2: If a literacy intervention is successful in promoting the development of Spanish, will significant improvements be found in phonological awareness, word reading and/or vocabulary in Spanish?

We anticipated that our pedagogical intervention would foster the development of Spanish literacy skills. Specifically, we expected elementary-school age children who received the intervention would experience greater growth in Spanish language and literacy skills than the control group who did not receive the intervention. Specifically, we hypothesized that Spanish HL children would show increased rates of improvement, and potentially higher levels of performance, on measures of phonological awareness, reading fluency and accuracy, and vocabulary in Spanish compared to the non-treatment control group. In what follows, we discuss the study and the results.

4. THE STUDY

4.1. Community Characteristics

The present study took place in two small cities in Indiana with a high percentage of Hispanic immigrants: Lafayette and Frankfort. The City of Lafayette has an estimated population of - 71,782 (U.S. Census Bureau, 2016), and together with West Lafayette, the two cities have a total of close to 95,000 residents. These cities' Latino or Hispanic population is about 12.5% of the total (U.S. Census Bureau, 2015a). Close to 7,000 people speak Spanish at home in Lafayette/West Lafayette area (U.S. Census Bureau, 2015b), and the overall attitude towards Spanish and bilingualism has been found to be positive (Barbosa, 2015). In regard to ethnolinguistic vitality of the community, Lafayette has a large number of Hispanic businesses (Mexican restaurants, bakeries, grocery stores, car dealerships) and several churches offer mass or other religious services in Spanish. Frankfort is a smaller rural area, with approximately 16,420 people (U.S. Census Bureau (2016). However, the Hispanic population is 24.1% of the total, which is higher than the national average (17.1%) (U.S. Census Bureau, 2015). Spanish is spoken in the households of 3,338 residents of Frankfort (U.S. Census Bureau, 2016). This large Hispanic community in Frankfort makes an important Hispanic enclave in Indiana and includes many residents from Mexico and El Salvador. The smaller size of the city results in a united Hispanic community that is concentrated in certain areas of the city.

4.2. Participants

A total of sixty-six ($n=66$) Spanish HL children participated in the study, with forty-one ($N=41$) children in the treatment group (average age in months = 102.28, $SD = 14.83$; 22 females, 19 males) and twenty-five ($n=25$) in the control group (average age in months = 105.68, $SD = 16.89$; 12 females, 13 males). The children were recruited from five elementary schools in two public school corporations. Three of the schools were located in Lafayette, Indiana, and the other two schools were located in Frankfort, Indiana. The children came from similarly low socioeconomic backgrounds, and have attended English-only schools without support for HL development prior to our intervention. We recruited children from grades K-4, and divided them into three cohorts for instruction according to age: K to 1st grade, 2nd to 3rd grade, and 4th grade. Table 1 shows the cohort division and average ages:

Table 1.

Summary of Participant Groups

Groups	age range (months)	mean age (months)	<i>n</i>	male	female
<i>Treatment</i>					
K-1	80-100	85.81	14	7	7
2-3	93-117	104.79	20	10	10
4	120-128	124.5	7	2	5
Total	80-128	102.28	41	19	22

<i>Control</i>					
K-1	84-102	90.5	7	2	5
2-3	92-115	97.36	11	4	7
4	116-137	127.43	7	7	0
Total	84-137	105.68	25	13	12

Fifty-four parents of the participants completed a language background questionnaire and a child language background questionnaire (Pérez-Leroux, Cuza & Thomas, 2011). The language background questionnaire elicited information on the parent's linguistic and personal background, including place of birth, age of arrival to the U.S., length of residence, level of education, present contact with Spanish and English, and level of proficiency in each language. The child language background questionnaire elicited information from parents on the child's linguistic abilities in both languages and patterns of language use at home and in social situations.

The majority of parents (46%) were born in Mexico and far fewer were born in the U.S. (11%) and Guatemala (2%). However, 41% of the parents did not indicate where they were born. Those parents who immigrated to the U.S. reported an average age of arrival of 20.15 years ($SD = 5.16$ years), and an average length of residence of 13.11 years ($SD = 4.30$ years). The highest level of education reported by most parents was either high school (41%) or technical training (13%). Very few attended college (4%) or only completed elementary school (6%), and 36% did not indicate their highest level of education. With regard to language use at home, 75% of the parents reported initiating conversations and responding to their children either *most often* or *only* in Spanish. The remaining 25% reported speaking to their children in Spanish and English equally, or slightly more in English than in Spanish. Parents also reported that children responded to their mothers in Spanish in 60% of the families, in a combination of Spanish and English in 12% of the families and in English in 7% of the families. The remaining 21% did not respond to this question. With fathers, patterns of language use were similar, with the highest percentage of children speaking only Spanish (41%), and a much smaller percentage (9%) reporting the use of a mixture of Spanish and English with the father. In contrast to the patterns with mothers, a higher percentage of children (24% compared to 7%) use only English with their fathers. Finally, 26% left this question blank or reported no significant contact with the child's father. The parents reported that the participants used mostly English (50%) to communicate with their siblings, while fewer used only Spanish (31%) or a mixture of Spanish and English (13%). A small percentage (6%) did not have siblings. All families reported that their dominant language at home was Spanish.

4.3. Measures

We implemented six standardized measures at the beginning (pre-test) and at the end of the intervention (post-test). All measures were implemented in English and Spanish at pre-test and post-test except the non-verbal reasoning task, which was implemented only at pre-test. These measures are shown in Table 2.

Table 2:*List of Measures, Pre and Post-test*

Child Measures	Description
Non-verbal Reasoning Task (Raven's Progressive Matrices, Raven, 2000).	This test controlled for non-verbal reasoning; it required the children to complete a visual-spatial matrix by choosing the missing piece from 6 or 8 options. We used a shortened version of the test by administering the first three subtests (A-C). Each subtest included 12 matrices for a total possible score of 36. The subtests included pattern completion, reasoning by analogy and serial reasoning.
Phonological Awareness Task Elision subtest of the Test of Phonological Processing in Spanish (TOPPS) (Francis, Carlo, August, Kenyon, Malabonga, Caglarcan, & Louguit, 2001).	This task measured phonemic awareness in Spanish and the ability to manipulate phonemes. It involved the deletion of the initial, middle or final phonemes in a word. There were three practice items and twenty test items. The test was discontinued if a participant made three consecutive errors.
Vocabulary Task Test de Vocabulario de Imágenes Peabody (TVIP) (Dunn, Padilla, Lugo & Duna, 1986)	This test measured receptive vocabulary knowledge and involved the correct identification of a picture matching the vocabulary word. As the test progressed, the frequency of the words declined based on word frequency in both languages. An experimenter read aloud each word and directed children to identify the picture that best corresponded to the meaning of the word.
Word Reading Accuracy Task <i>Identificación de letras y palabras subtest of</i> Woodcock Language Proficiency Battery-Revised Spanish Edition (WLPB-S, Woodcock & Munoz-Sandoval, 1995)	This test required the child to read words that increased in length and difficulty. The test was discontinued if a participant read 6 successive words incorrectly. The score on this test was the number of words read correctly.
Word Reading Fluency Task TOWRE (Sight Word Efficiency Form A –Spanish version).	This task involved a list of 104 words divided into 4 columns of 26 words each. After 8 practice items, participants read each column as quickly as possible. The number of words read correctly in 45 seconds was recorded as the participant's score.

We implemented all the measures described above during a two-week interval for pre-test and post-test sessions.¹ The tasks were implemented by a group of graduate students in Hispanic linguistics and supervised by the principal investigator. The children were tested at the school setting. Two schools participated in the intervention (treatment groups) and three served as baseline control groups. All necessary permissions and authorizations to conduct the study were received before the beginning of the intervention from the school board, school authorities and

the parents. Children also provided consent to participate, either orally or written according to their ages.

4.4. Literacy Intervention and Teaching Curriculum

The literacy intervention took place across 18 weeks, 9 in the fall semester and 9 in the spring semester. The classes were administered across 18 consecutive weeks except for university and elementary school breaks for Thanksgiving, Christmas and Spring Break. The language of instruction was Spanish only and the curriculum included the development of vocabulary via cognate instruction (Appendix A), phonological awareness (Appendix B), and reading fluency and accuracy. The curriculum was developed by the research team, and included the following:

- (i) 10 minutes of reading and singing of children's music as a warm-up activity;
- (ii) 30 minutes of phonological/phonemic awareness instruction and word reading using the age-appropriate textbooks published by Santillana, USA; titles are listed below.
- (iii) 20 minutes of explicit vocabulary instruction via cognate instruction.

The curriculum was in line with the Common Core Standards (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010) mandated by the state where the study was conducted and included leveled reading, phonemic awareness instruction, oral readings and comprehension, and writing about the readings in Spanish.

The music education module (Appendix C) included the singing of children's songs, mostly from Mexico. The main goal of this activity was to serve as a warm-up period, as the program took place after school and some of the children were tired. The children were gathered into a circle and an instructor played the song of the day three times. This activity was meant to develop language fluency and accuracy via singing. The phonological awareness module was conducted using three age-appropriate textbooks published by Santillana USA: (1) *Mis primeras letras* [My first letters], Book 1 and 2 (for K-1st grade) (n.d.), (2) *Aprendo a leer con mi cartilla* [I'm learning to read with my primer] (n.d.) (for 2nd -3rd grade), and (3) *Lenguaje 1* [Language 1] (n.d.) (for 4th grade). Santillana is a leading international publisher of educational materials in Spanish. Each student owned the books and was able to complete all of its activities as the program progressed. A detailed syllabus with everything to be taught each day was provided to the instructors. The syllabus included a large number of ancillaries to facilitate phonological awareness and decoding, including alphabet flash cards, syllabic flash cards, storybooks, games, etc.

Finally, we incorporated an intentional vocabulary curriculum via English cognates (Dressler et al., 2011).² The curriculum was organized by categories or overarching themes (see Appendix A). Each category or theme (e.g., parts of a house) was divided into sub-sections as needed, and matched by grade cohort (e.g., SET A: K and 1st grade; SET B: 2nd grade and 3rd grade; SET C: 4th grade). Each session included the teaching and practice of three new words for a total of 54 words. The criteria for lexical selection was the following: (i) words less likely to be learned incidentally through home interaction; (ii) words with high communicative value that are meaningful to the children matched by age; (iii) cognate words and non-cognate words (adequately balanced across 18 weeks); (iv) morphologically complex words (by derivation or

compounding); and (v) morphologically simple words (adequately balanced across 18 weeks).

4.5. Training and Supervision of Instructors

The intervention was conducted by undergraduate students from a large research university in the Midwest majoring or minoring in Spanish. The instructors were not pre-teachers (except two) or had previous experience teaching young children. The only requirement to participate in the program was to be fluent in Spanish and have no criminal background. The instructors also had to sign a service-learning contract where they committed to participating in the program once a week and to attending monthly meetings with the research team during the course of the intervention. Some instructors were heritage speakers of Spanish themselves. This made the process easier for them as they could identify with the children's difficulties in their HL, and with their overall linguistic and cultural background. Two members of the research team provided training to the students on the curriculum (music component, vocabulary and phonological awareness curricula) and teaching materials (textbooks, flash cards, story books, etc.). We also provided training and supervision in regard to teaching activities, and methods of presenting the curricular content, including vocabulary games, the use of visual aids, drawings, flash cards, crosswords, alphabet soup, reading aloud exercises, physical response activities, etc. We also offered instructors tips on keeping the students focused and motivated during the intervention process. We met with the instructors before the intervention started and then every two weeks to follow up on the intervention and address their concerns.

In addition to discussing several issues related to specific aspects of the curriculum, the meetings with the instructors also served as an opportunity to help them build confidence about their linguistic skills in Spanish and raise their awareness about the importance of teaching Spanish as a minority language and the benefits of bilingualism. During the 18 weeks that the intervention lasted, the principal investigator and another member of the research team were present in the classroom in case a student needed assistance. The instructors received six points extra credit toward the Spanish language course they were taking at the time for their participation in the program.

4.6. Procedure

Each instructor (undergraduate student) carried out a brief brainstorming session with the children about the words they knew relative to the specific theme. Then the instructor introduced the words visually and orally (or reinforced the material if some children were familiar with a particular vocabulary word), and developed a guided practice or activity with the children. Finally, homework for further practice at home with the parent was assigned. The nature of the practice drills varied according to age; for example, older children were asked to pursue more open-ended activities and child-to-child interaction was recommended.

5. RESULTS

Results showed significant gains in Spanish language and literacy measures for the participants, who continued in the program after the intervention, confirming our expectations. Table 3 below presents means, standard deviations and effect sizes for pre-test and post-test measures for the treatment group:

Table 3.

Descriptive Statistics and Effect Sizes for Spanish Language and Literacy Measures for Children in the Treatment Group

	Pre-test (N = 41)		Post-test (N = 41)		<i>p</i>	Effect size (partial eta squared)
	Mean	Std. Deviation	Mean	Std. Deviation		
Phonological awareness	5.33	4.48	8.39	6.29	<.001	.296
Word reading Accuracy	16.21	11.42	24.83	11.10	<.001	.506
Word Reading Fluency	14.29	15.82	24.00	15.79	<.001	.709
Vocabulary	44.89	18.03	54.70	19.50	<.001	.432

Note. *p* values refer to changes from pre-test to post-test on each measure.

A repeated-measures MANOVA was conducted to examine differences between pre-test and post-test for the treatment group on measures of Spanish phonological awareness, word reading accuracy, word reading fluency and vocabulary.³ Results showed significant main effect of time (pre-test vs. post-test) (Wilks' $\lambda = .263$, $F(4, 36) = 25.26$, $p < .001$). Subsequent univariate ANOVAs analyses examining each measure across time demonstrated that all measures reflected significant improvement from pre-test to post-test for the experimental group ($p < .001$ for all tasks). Effect sizes for changes from pre-test to post-test were large for phonological awareness, word reading accuracy, word reading fluency, and vocabulary.

A second set of analyses was conducted to examine if the children in the treatment group experience significantly more growth than the children who did not participate in program. In order to reduce the possibility of group differences being due to other factors, such as cognitive ability, the treatment and control groups were matched on the measure of non-verbal reasoning, which resulted in 25 Spanish-English bilingual children (Average age in months = 108.48, SD = 15.15, 15 Females) in the treatment group, and 24 Spanish-English bilingual children serving as control group (Average age in months = 104.42, SD = 16.73, 13 females). The treatment group and the control group were not significantly different in terms of age ($p = .367$), gender ($p = .901$) and non-verbal reasoning ($p = .727$).

A repeated-measures MANOVA was conducted to examine differences from pre-test to post-test for the treatment and control group on measures of Spanish language and literacy skills. For the multivariate test, there was a significant time (pre-test vs. post-test) by group (treatment vs.

control) interaction (Wilks' $\lambda = .648$, $F(4, 61) = 8.293$, $p < .001$). Follow-up univariate ANOVAs were subsequently conducted to understand the group differences for each measure. Over the course of the program the children's Spanish phonological awareness, word reading accuracy, word reading fluency, and vocabulary increased significantly for both groups. However, the children who participated in the intervention experienced significantly more growth in Spanish word reading skills (both in terms of accuracy and fluency) and vocabulary than the children who did not participate in the program. Phonological awareness skills improved equally for both groups. Figure 1 represents the mean scores for the treatment and control groups on both the pre-test and post-test. Table 4 below presents means, standard deviations, significant levels, and effect sizes for Spanish phonological awareness, word reading accuracy and fluency, and vocabulary:

Figure 1: Mean Scores for Treatment and Control Groups on Pre-Test and Post-Test

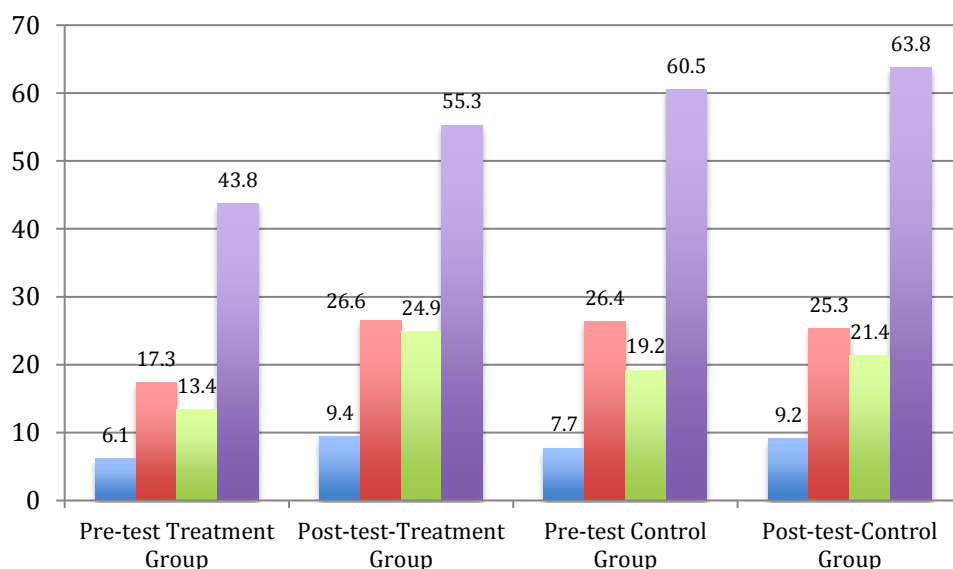


Table 4.

Means, Standard Deviations and Effect Sizes for Treatment and Control Groups at Pre-Test and Post-Test (Analysis 2)

Spanish Measures	Treatment (N = 25)				Control (N = 24)					
	Pre-test		Post-test		Pre-test		Post-test		<i>p</i>	Effect size (partial eta squared)
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Phonological awareness	6.12	4.5	9.44	6.41	7.72	5.84	9.16	6.32	0.212	0.024
Word reading Accuracy	17.32	9.01	26.56	9.31	26.36	13.06	25.32	15.78	0.001	0.260
Word Reading Fluency	13.44	13.85	24.92	15.24	19.2	19.08	21.4	19.31	0.001	0.279
Vocabulary	43.76	14.58	55.28	17.89	60.52	17.87	63.76	16.16	0.014	0.090

Note. The *p* value is based on the time by group interaction for each measure.

Notably, at pre-test the control group outperformed the experimental group on Spanish word reading accuracy ($p = .015$) and vocabulary ($p = .002$). It is possible that the advantage of the control group stems from community characteristics. The control came from Frankfort, Indiana, which is a smaller rural community than Lafayette, where the experimental group was from. The Frankfort group may have had higher frequency of Spanish language use, as the members of the Spanish community could be closer to each other than they are in bigger cities. These differences were non-significant at post-test ($p = .623$, and $.103$ respectively), suggesting that the initial gap in Spanish language and literacy skills between the treatment and control group significantly decreased. Results demonstrated that the literacy program had a positive impact on increasing Spanish language and literacy skills.

6. Discussion and Conclusions

This study examined the effectiveness of a Spanish literacy program aimed at improving reading and writing skills among young bilingual children of Hispanic background born in the U.S. In a departure from previous research, we systematically combined word reading and vocabulary-based instruction in one comprehensive program to investigate the development of reading and language skills in Spanish. The results demonstrated that the 18-week program significantly improved Spanish phonological awareness, word reading accuracy, word reading fluency and vocabulary in children from kindergarten to grade 4. The children who received the intervention experienced significantly more growth in Spanish word reading accuracy, word reading fluency and vocabulary than a group of children who were matched on non-verbal reasoning and did not participate in the program.

The results suggest that an after-school literacy program focused on the development of literacy skills in HL Spanish is effective. Furthermore, our results provide strong evidence towards validating the efficacy of a service-learning program aimed at facilitating the development of Spanish literacy, especially for HL learners who may initially have weak skills. In addition to providing successful literacy instruction to Spanish HL children, this literacy/community-engagement program also provided significant experiential learning to the undergraduate students who participated in the program as instructors. Specifically, the program provided the students with an opportunity to learn and practice the Spanish language in a naturalistic context, and to gain hands-on experience in teaching HL Spanish at the elementary level. Furthermore, the program facilitated the students' sense of purpose and community engagement, confirming the findings of previous research (DuBord & Kimball, 2016; Isabelli & Muse, 2016; MacGregor-Mendoza & Moreno, 2016).

Although we held bi-weekly meetings with the instructors and always requested their feedback on their experience as program participants, we did not quantify or formalize these interactions for the purpose of the present study. Future research might benefit from gathering and assessing instructor's feedback about the intervention and about their roles as language instructors. This feedback could include instructors' views on the effectiveness of the materials being used, program activities, child-to-child dynamics and interaction, how confident they felt about their own language skills, and how their sense of confidence might have affected the quality of the instruction.

Interesting differences were noted between the treatment and control groups across the different constructs. **Phonological awareness developed significantly for both groups, but there was no advantage for the experimental group.** This finding is not necessarily surprising given that all children receive regular phonological instruction in the classroom. Even though the instruction is in English, reading research has repeatedly demonstrated that for bilingual children, phonological awareness instruction provided in one language is beneficial to the development of phonological awareness in another language (Durgunoglu, Nagy & Hancin, 1993; Genesee & Geva, 2006; Gottardo, 2002). Additionally, the age range of the participants might have influenced the results. It is reasonable to assume that it would be more likely to detect significant differences across the treatment and control group for younger children as opposed to older children, who have had many more years of formal reading instruction and reading experiences.

For Spanish word reading accuracy and fluency, we saw significant gains for the treatment group while the control group remained relatively stable over the course of the program. Substantial improvements in Spanish reading accuracy and fluency are promising because these skills constitute a basis to promote proficiency and further development of reading comprehension (Ehri, 1997; Gough & Tunmer, 1986, LaBerge & Samuels, 1974). The results suggest that explicit instruction and increased exposure to Spanish reading is critical to support skill improvements. However, we should note that the control group performed significantly higher than the treatment group at the beginning of the study. Perhaps the treatment group's growth was accelerated because of having more room to grow. Nevertheless, given that the control group remained static and the treatment group significantly improved in performance, the results of the program are promising and warrant further evaluation.

With respect to Spanish vocabulary, the control group initially had a higher level of vocabulary. However, over the course of the program, the treatment group improved significantly and closed the gap, while the control group did not make significant gains. These results suggest that a program that focuses on exposing children to rich oral language and authentic Spanish print experiences is essential to improving vocabulary knowledge. Differences in initial levels of vocabulary may have influenced the subsequent rate of growth of the treatment and control group. However, given the relatively short duration of the program and that the control group didn't significantly improve vocabulary, the results are promising and support a large body of research that focuses on explicit instruction as a power route to improving word knowledge and usage.

Overall, the literacy program was effective at promoting both Spanish language and literacy skills. The results demonstrate promise in the utility and value of connecting a service-learning program to delivering a prescribed curriculum to Spanish to heritage language speakers. Furthermore, given that the undergraduate students were not education majors or pre-service teachers, individuals do not appear to need extensive training or pedagogical knowledge beyond what they received in the program to successfully deliver the intervention. The outcome of a significant effect on HL development resulting from the work of volunteer undergraduate students teaching one hour per week should be encouraging to educators and parents living in areas lacking resources to dedicate to a large-scale bilingual education program.

The curriculum implemented sheds light on how to improve the quality of literacy instruction in a diverse society, while guiding informed policymaking for bilingual education. Furthermore, our results lead to a better understanding of the advantages of early pedagogical intervention in the development of Spanish as HL during childhood, an area of research so far underexplored. Specifically, our results have potential implications for classroom practices given recent research documenting linguistic variability in the adult HL speaker's grammar due to learning/literacy conditions (Mazzaro, Cuza & Colantoni, 2016; Montrul, Davidson, de la Fuente & Foote, 2013). Additionally, our program provides a model for community organizations to deliver an evidence-based program that supports children across the early elementary grades learning Spanish. We expect literacy programs like ours not only to arrest the L1 attrition process during childhood but also to increase the overall L1 linguistic ability of heritage Spanish children.

REFERENCES

- Aprendo a leer con mi cartilla [I'm learning to read with my primer] [elementary-level textbook]. (n.d.). Miami, FL: Santillana USA Educational Publishers.
- Aud, S., Hussar, W., Kena, G., Bianco, K., Frohlich, L., Kemp, J. & Tahan, K. (2011). *The Condition of Education 2011 (NCES 2011-033)*. U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office. Retrieved from <https://nces.ed.gov/pubs2011/2011033.pdf>
- August, D., & Hakuta, K. (1997). *Improving schooling for language-minority children: A research agenda*. Washington, D.C.: National Academy Press.

- Baker, C. (2006). *Foundations of Bilingual Education and Bilingualism*. Bristol, UK: Multilingual Matters.
- Barbosa, M. (2015). Spanish-speaking immigrants in Indiana: Quantitative and qualitative analyses of their attitudes towards Spanish in the U.S. (Unpublished doctoral dissertation). Purdue University, West Lafayette, Indiana.
- Benmamoun, E., Montrul, S., & Polinsky, M. (2013). Heritage languages and their speakers: Opportunities and challenges for linguistics [Keynote article]. *Theoretical Linguistics*, 39, 129-181.
- Bialystok, E., McBride-Chang, C., & Luk, G. (2005). Bilingualism, language proficiency and learning to read in two writing systems. *Journal of Educational Psychology*, 97, 580-590.
- Bialystok, E. (2001). *Bilingualism in development*. Cambridge, UK: Cambridge University Press.
- Bialystok, E., Craik, F. I. M., Klein, R. & Viswanathan, M. (2004). Bilingualism, aging, and cognitive control: Evidence from the Simon task. *Psychology & Aging*, 19, 290-303.
- Bylund, E. (2009). Maturation constraints and first language attrition. *Language Learning*, 59, 687-715.
- Carreira, M., & Kagan, O. (2011). The results of the heritage language survey: Implications for teaching, curriculum design and professional development. *Foreign Language Annals*, 44, 40-64.
- Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research*, 49, 221-225.
- Cummins, J. (1981). The role of primary language development in promoting educational success for language minority students. In C. F. Leyba (Ed.), *Schooling and language minority students: A theoretical framework* (pp. 3-49). Los Angeles: California State University, National Evaluation, Dissemination and Assessment Center. Retrieved from <http://files.eric.ed.gov/fulltext/ED249773.pdf>
- Cummins, J. (1991). Interdependence of first- and second-language proficiency in bilingual children. In E. Bialystok (Ed.), *Language processing in bilingual children* (pp. 70-89). Cambridge, England: Cambridge University Press.
- Cummins, J. (2000). *Language, power, and pedagogy: Bilingual children in the crossfire*. Clevedon, England: Multilingual Matters.
- Chapman, M. V. & Perreira, M. V. (2005). The well-being of immigrant Latino youth: A framework to inform practice. *Families in society*, 86, 104-111.
- Chen, X., Ramirez, G., Luo, Y.C., Geva, E. & Ku, Y-M. (2012). Comparing vocabulary development in Spanish- and Chinese-Speaking ELLs: The Effects of metalinguistic and sociocultural factors. *Reading and Writing: An Interdisciplinary Journal*, 25(8), 1991-2020.
- Chen, X.; Xu, F., Nguyen, T., Hong, G., & Wang, Y. (2010). Effects of cross-language transfer on first-language phonological awareness and literacy skills in Chinese children receiving English instruction. *Journal of Educational Psychology*, 102(3), 712-728.
- Cuza, A. (2010). The L1 attrition of the Spanish present tense. *Hispania*, 93(2), 256-272.
- Cuza, A. & Miller, L. (2015). The protracted acquisition of past tense aspectual values in child heritage Spanish. In R. Klassen, J. Liceras, & E. Valenzuela (Eds.), *Hispanic linguistics at the crossroad: Theoretical linguistics, language acquisition and language contact* (pp. 211-230). Amsterdam, Netherlands: John Benjamins.

- Cuza, A. & Pérez-Tattam, R. (2016). Grammatical gender selection and phrasal word order in child heritage Spanish: A feature reassembly approach. *Bilingualism: Language and Cognition*, 19(1), 50-68.
- Dressler, C., Carlo, M., Snow, C., August, D., White, C. (2011). Spanish-speaking students' use of cognate knowledge to infer meaning of English words. *Bilingualism: Language and Cognition*, 14(2), 243-255.
- Driscoll, M., & Torres, L. (2013). Acculturative stress and Latino depression: The mediating role of behavioral and cognitive resources. *Cultural Diversity and Ethnic Minority Psychology*, 19(4), 373-382
- Deacon, S. H., Wade-Woolley, L., & Kirby, J. (2007). Cross-over: The role of morphological awareness in French immersion children's reading. *Developmental Psychology*, 43(3), 732-746.
- De Houwer, A. (1990). *The Acquisition of Two Languages from Birth: a Case Study*, Cambridge, England: Cambridge University Press.
- Durgunoglu, A. Y., Nagy, W. E. & Hancin, B. J. (1993). Cross language transfer of phonological awareness. *Journal of Educational Psychology*, 85(3), 453-65.
- Durgunoglu, A.Y. (1998). Acquiring literacy in English and Spanish in the United States. In A.Y. Durgunoglu & L. Verhoeven (Eds.), *Literacy development in a multilingual context: cross-cultural perspectives*. (pp. 135-146). Mahwah, NJ: Erlbaum.
- Dunn, L.W., Padilla, E., Lugo, D. & Duna, L. (1986). *Test de vocabulario en imágenes Peabody*. Circle Pines, MN: American Guidance Service.
- Driscoll, M. W., & Torres, L. (2013). Acculturative stress and Latino depression: The mediating role of behavioral and cognitive resources. *Cultural Diversity and Ethnic Minority Psychology*, 19(4), 373-382.
- DuBord, E. & Kimball, E. (2016). Cross-Language Community Engagement: Assessing the strengths of heritage learners. *Heritage Language Journal*, 13(3), 298-330. Available from <http://www.heritagelanguages.org>
- Ehri, L. (1997). Sight word learning in normal readers and dyslexics. In B. Blachman (Ed.), *Foundations of reading acquisition* (pp. 163-189). Hillsdale, NJ: Erlbaum.
- Francis, D., Carlo, M., August, D., Kenyon, D., Malabonga, V., Caglarcan, S., & Louguit, M. (2001). *Test of phonological processing in Spanish*. Washington, DC: Center for Applied Linguistics.
- Fry, R. (2003). *Hispanic Youth Dropping out of U.S. Schools: Measuring the challenge*. Washington, DC: Pew Hispanic Center. Retrieved from <http://www.pewhispanic.org/files/reports/19.pdf>
- Genesee, F. (1989). Early bilingual development: One language or two. *Journal of Child Language*, 16(1), 161-179.
- Genesee, F. & Geva, E. (2006). Cross-linguistic relationships in working memory, phonological processes, and oral language. In D. August & T. Shanahan (Eds.), *Developing literacy in second-language learners: Report of the national literacy panel on language-minority children and youth* (pp. 175-184). Mahwah, NJ: Erlbaum.
- Gottardo, A. (2002). The relationship between language and reading skills in bilingual Spanish-English speakers. *Topics in language disorders*, 22, 46-70.
- Gough, P. & Tunmer, W. (1986). Decoding, reading and reading disability. *Remedial and Special Education*, 7(1), 6-10.

- Hakuta, K. & D'Andrea, D. (1992). Some properties of bilingual maintenance and loss in Mexican background high-school students. *Applied Linguistics*, 13(1), 72-99.
- Hemphill, F.C. & Vanneman, A. (2011). *Achievement gaps: How Hispanic and White students in public schools perform in mathematics and reading on the National Assessment of Educational Progress*. Statistical analysis report (NCES 2011-459). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC. Retrieved from <http://files.eric.ed.gov/fulltext/ED520960.pdf>
- Howard, E. R., & Sugarman, J. (2007). *Realizing the vision of two-way immersion: Fostering effective programs and classrooms*. Washington, DC, and McHenry, IL: Center for Applied Linguistics and Delta Systems.
- Isabelli, C., & Muse, S. (2016). Service-learning in the Latino community: The impact on Spanish heritage language students and the community. *Heritage Language Journal*, 13(3), 331-353. Available from <http://www.heritagelanguages.org>
- LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology*, 6, 293-323.
- Leeman, J., Rabin, L., & Román-Mendoza, E. (2011a). Identity and social activism in heritage language education. *Modern Language Journal*, 95, 481-495.
- Leeman, J., Rabin, L., & Román-Mendoza, E. (2011b). Critical pedagogy beyond the classroom walls: Community service-learning and Spanish heritage language education. *Heritage Language Journal*, 8(3), 1-21. Available from <http://www.heritagelanguages.org>
- Lenguaje I* [Language 1] [elementary-level textbook]. (n.d.). Miami, FL: Santillana USA Educational Publishers.
- MacGregor-Mendoza, P. & Moreno, G. (2016). Connecting Spanish Heritage Language Students with the Community through Service-Learning. *Heritage Language Journal*, 13(3), 405-433. Available from <http://www.heritagelanguages.org>
- Mazzaro, N., Cuza, A., & Colantoni, L. (2016). Age effects and the Discrimination of consonantal and vocalic contrasts in heritage and native Spanish. In Tortora, C., den Dikken, M., Montoya, I., & O'Neill, T. (Eds.), *Selected proceedings from the 43rd Linguistic Symposium on Romance Languages* (LSRL). Amsterdam, Netherlands: John Benjamins.
- Meisel, J. (2001). The simultaneous acquisition of two first languages: Early differentiation and subsequent development of grammars. In J. Cenoz and F. Genesee (Eds.), *Trends in bilingual acquisition* (pp. 11-42). Amsterdam, Netherlands: John Benjamins.
- Miller, L. & Cuza, A. (2013). On the status of tense and aspect morphology in child heritage Spanish: An analysis of accuracy levels. In Cabrelli Amaro, J., Judy, T., & Pascual y Cabo, D. (Eds.), *Proceedings of 12th Generative Approaches to Second Language Acquisition Conference* (GASLA 2013) (pp.117-129). Somerville, MA: Cascadilla Proceedings Project.
- Mis primeras letras [My first letters] I/II [elementary level textbook]. (n.d.). Miami, FL: Santillana USA Educational Publishers.
- Montrul, S. (2002). Incomplete acquisition and attrition of Spanish tense/aspect distinction in adult bilinguals. *Bilingualism: Language and Cognition*, 5(1), 39-68.
- Montrul, S. (2008). Incomplete acquisition in bilingualism. Reexamining the age factor. Amsterdam, Netherlands: John Benjamins.
- Montrul, S., Davidson, J., de la Fuente I., Foote, R. (2013). Early language experience facilitates gender agreement processing in Spanish heritage speakers. *Bilingualism: Language and Cognition*, 17(1), 118-138.

- Muljani, D., Koda, K., & Moates, D. (1998). The development of word recognition in a second language. *Applied Psycholinguistics*, 19(1), 99-113.
- National Governors Association Center for Best Practices & Council of Chief State School Officers (2010). *Common Core State Standards for English Language Arts: K-5 introduction*. Washington, D.C.: National Governors Association Center for Best Practices/Council of Chief State School Officers. Retrieved from <http://www.corestandards.org/ELA-Literacy/RF/introduction/>
- Pérez-Leroux, A.T., Cuza, A. & Thomas, D. (2011). Clitic placement in Spanish/English bilingual children. *Bilingualism: Language and Cognition*, 14(2), 221-232.
- Polinsky, M. (2011). Reanalysis in adult heritage language: A case for attrition. *Studies in second language acquisition*, 33(2), 305-328.
- Raven, J. (2000). The Raven's progressive matrices: Change and stability over culture and time. *Cognitive Psychology*, 41(1), 1-48.
- Rhoades, W. (2009). Assessing early literacy development in Spanish speakers when Spanish is the language of instruction (Unpublished doctoral dissertation). University of Oregon, Eugene.
- Said-Mohand, A. (2010). The teaching of Spanish as a heritage language: Overview of what we need to know as educators. *Porta Linguarum*, 16, 89-104.
- Schmid, M. S. (2002). *First language attrition, use, and maintenance: The case of German Jews in Anglophone countries*. Amsterdam, Netherlands: John Benjamins.
- Smokowski, P. R., & Bacallao, M. (2011). *Becoming bicultural: Risk, resilience, and Latino youth*. New York, NY: New York University Press.
- Stepler, R., & Brown, A. *Statistical Portrait of Hispanics in the United States*. Pew Research Center Hispanic Trends. Retrieved from <http://www.pewhispanic.org/2016/04/19/statistical-portrait-of-hispanics-in-the-united-states-key-charts>
- U.S. Census Bureau. (2016). Table PEPASR6H: Annual Estimates of the Resident Population by Sex, Age, Race, and Hispanic Origin for the United States and States: April 1, 2010 to July 1, 2016 [data table] for July 1, 2016. 2016 Population Estimates. Available from <http://census.gov>
- U.S. Census Bureau. (2015a). Table DP05: ACS Demographic and housing estimates [data table] for Lafayette city, Indiana. 2011-2015 American Community Survey 5-Year Estimates. Available from <http://www.census.gov>
- U.S. Census Bureau. (2015b). Table S1601: Language spoken at home [data table]. 2011-2015 American Community Survey 5-Year Estimates. Available from <http://www.census.gov>
- Valdés, G. (2001). Heritage language students: Profiles and possibilities. In J. K. Peyton, D. A. Ranard, & S. McGinnis (Eds.), *Heritage languages in America: Preserving a national resource* (Language in Education: theory and practice) (pp. 37-77). Washington, DC: Center for Applied Linguistics/McHenry, IL: Delta Systems.
- Valdez, C. R., Padilla, B., Moore, S. & Magaña, S. (2013). Feasibility, acceptability, and preliminary outcomes of the Fortalezas Familiares intervention for Latino families facing maternal depression. *Family Process*, 52(3), 394-410.
- Volterra, V., & Taeschner, T. (1978). The acquisition and development of language by bilingual children. *Journal of Child Language*, 5(2), 311-326.

- Vaughn, S., Linan-Thompson, S., Mathes, P., Cirino, P., Carlson, C., Pollard-Durodola, S.; Cardenas-Hagan, E., Francis, D. (2006). Effectiveness of Spanish intervention for first-grade English language learners at risk for reading difficulties. *Journal of Learning Disabilities*, 39(1), 56-73.
- Woodcock, R. W., & Muñoz-Sandoval, A. (1995). *Woodcock language proficiency battery revised*, Spanish form. Itasca, IL: Riverside.

APPENDIX A

General Procedures for Implementation of Vocabulary Curriculum Excerpt of Vocabulary Curriculum

The curriculum is organized by categories or overarching themes. Each category or theme (e.g., parts of the house) might be subdivided into sub-sections (outside the house vs. parts of the house) as needed. Each session includes the teaching and practice of **3 new words** for a total of **54 words**

The themes selected will be matched by age/grade:

SET A: Kindergarten and 1st grade curriculum

SET B: 2nd grade and 3rd grade curriculum

SET C: 4th grade curriculum

Note: Some items might overlap but an effort will be made to have an age appropriate curriculum.

The criteria for lexical selection is the following:

- Words **less** likely to be learned incidentally through home interaction.
- Words that have high communicative value and that are meaningful to the child matched by age.
- Cognate words and non-cognate words (adequately balanced through the 18 weeks)
- Morphologically complex words (by derivation or compounding) and morphological simple words (adequately balanced through the 18 weeks).

Procedure:

Each instructor will carry out a brief brainstorming session with the child about the words they know relative to the specific theme. Then, the TA will proceed to introduce the words visually and orally, and develop a controlled practice. Finally, homework for further practice at home with the parent will be assigned. The nature of the practice drills will vary according to the age of the child. Older children may be asked to do more open-ended activities and creative practice. Child to child interaction is recommended for older children. Suggestions for practice drills are provided at the end of the schedule.

Legend: nc (non-cognate), c (cognate), mc (morphologically complex), ms (morphologically simple)

Sample of Vocabulary Curriculum and Schedule

Week	SET A (K- 1)	Word Type	SET B (2 & 3 grade)	Word Type	SET C (4 grade)	Word Type
1	<i>La casa por fuera</i> el garaje la escalera el buzón HW: los números 0-30	c, ms nc, mc nc, ms	<i>La casa por fuera</i> el tejado la chimenea la antena HW: los números y matemáticas	nc, mc c, ms c, ms	<i>La casa por fuera</i> el canal el pasto el jardín HW: los números y matemáticas	nc, mc nc, ms nc, ms
2	<i>La sala</i> el sofá la televisión la mesa HW: el alfabeto	c, ms c, mc nc, ms	<i>La sala</i> la silla la lámpara el cuadro HW: la familia	nc, ms c, ms nc, ms	<i>La sala</i> el radiador la alfombra el librero HW: la familia y preguntas con <i>cuántos</i>	c, mc nc, ms nc, mc
3	<i>El dormitorio</i> la cama la computadora el gancho HW: las comidas de hoy	nc, ms c, mc nc, ms	<i>El dormitorio</i> el ropero la grabadora las cortinas HW: La comida	nc, mc nc, mc c, ms	<i>El dormitorio</i> el despertador la persiana el escritorio HW: Mi plato	nc, mc nc, ms nc, ms
4	<i>El baño</i> el champú la bañera la llave HW: los 5 sentidos; sopa de letras	c, ms nc, mc nc, ms	<i>El baño</i> la toalla la taza el desodorante HW: 5 sentidos y partes del cuerpo; sopa de letras	nc, mc nc, ms c, mc	<i>El baño</i> la jabonera la regadera la esponja HW: 5 sentidos y partes del cuerpo; crucigrama	nc, mc nc, mc c, ms

APPENDIX B

Excerpt of Phonological/Phonemic Awareness Curriculum

Materials for K-1

Alphabet Flash Cards

La cartilla

Mis primeras letras Book 1-2

Materials for 2-3

Syllabic Flash Cards

Aprendo a leer con mi cartilla

Materials for 4

Syllabic Flash Cards

Aprendo a leer con mi cartilla

Note: Textbooks and materials were from Santillana USA

Sample of Phonological/Phonemic Awareness Curriculum and schedule

Week	SET A (K- 1 grades)	SET B (2 & 3 grades)	SET C (4 grade)
1	Lesson 1: <i>La vocal o</i> . Libro 1 Tarea	Lesson 1: Las vocales <i>o y e</i> Tarea	Lesson 1: Las vocales <i>o y e</i> Tarea
2	Lesson 2: <i>La vocal e</i> . Libro 1 Tarea	Lesson 2: <i>La vocal e y a</i> Tarea	Lesson 2: <i>La vocal e y a</i> Tarea
3	Lesson 3: <i>La vocal a</i> . Libro 1 Tarea	Lesson 3: <i>La vocal i o u</i> Tarea	Lesson 3: <i>La vocal i o u</i> Tarea
4	Lesson 4: <i>La vocal i</i> . Libro 1 Tarea	Lesson 4: <i>La consonante m</i> . Tarea	Lesson 4: <i>La consonante m</i> . Tarea
5	Lesson 5: <i>La vocal u</i> . Libro 1 Tarea	Lesson 5: <i>La consonante p</i> Tarea	Lesson 5: <i>La consonante p</i> Tarea
6	Lesson 6: Repaso de las vocales. Libro 1. Tarea	Lesson 6: <i>La consonante t</i> Tarea	Lesson 6: <i>La consonante t</i> Tarea
7	Lesson 7: Repaso de la consonante <i>m</i> . Libro 1. Tarea	Lesson 7: <i>La consonante l</i> Tarea	Lesson 7: <i>La consonante l</i> Tarea
8	Lesson 8: Repaso de la consonante <i>p</i> . Libro 1. Tarea	Lesson 8: <i>La consonante s</i> Tarea	Lesson 8: <i>La consonante s</i> Tarea

APPENDIX C**Excerpt of Music Curriculum: Fluency and Comprehension through Culturally Relevant Children's Music (10 minutes)**

	Song Title
Week 1	A la rueda, rueda
Week 2	Aserrín, Aserrán
Week 3	Martinillo
Week 4	Soy una pizza
Week 5	Los días de la semana
Week 6	Pin Pon
Week 7	Los pollitos
Week 8	Trabalenguas
Week 9	Tengo una vaca lechera
Week 10	Te lo digo yo
Week 11	Cucú
Week 12	Dos elefantes
Week 13	Barquito de papel
Week 14	Arroz con leche
Week 15	Susanita tiene un ratón
Week 16	De colores
Week 17	Debajo de un botón, había un ratón
Week 18	A Atocha va una niña

NOTES

1. English measures are part of a larger study and they are not reported here for the purpose of the current study.
2. Cognates are words with common etymological origin in two languages.
3. Four students missed at least one assessment from the pre-test or post-test and were not included in the repeated measures analysis, resulting in a final sample of 41 participants.