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Development of Spanish Literacy Skills among Bilingual Students

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1

Topic: Promoting the development of Spanish literacy skills among bilingual students by enhancing their vocabulary knowledge: benefits and challenges

Abstract: This exploratory study was conducted to evaluate the Spanish literacy skills of fourth grade students in a two-way immersion program in the United States after participating in a vocabulary enrichment program.

Keywords: Vocabulary Instruction, Two-way Immersion Education, Academic Vocabulary Development, Reading comprehension, Spanish Language, Equity

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O. Introduction

The United States lacks the foreign language resources necessary to succeed in a global society. Only 25% of American elementary schools (and 15% of public elementary schools) report teaching foreign languages, 6% less than in 1997. This represents a statistically significant decrease in the number of elementary schools offering foreign language instruction in the last decade. Moreover, among schools offering a foreign language over 90% focus on giving introductory exposure to a language rather than on achieving overall proficiency (Rhodes & Pufahl 2010). Yet, there is evidence from psychology and neurology suggesting that speaking more than one language has several cognitive advantages (Adesope, Lavin, Thompson, & Ungerleider 2010; Bialystok 1999), and that the benefits of bilingualism are more apparent when students attain high levels of proficiency in both languages (Cummins 1981).

2

If the United States is to remain competitive in a global society, American schools must prepare students to become proficient users of languages other than English. While the foreign language instruction offered in the majority of schools in the U.S. is not aimed at preparing students to achieve high levels of proficiency in the language, there are exceptions around the country where schools (mostly public schools) offer more intensive foreign language programs that teach academic content in the target language as is the case with *dual language* (DL) programs. DL programs are becoming an increasingly attractive option for schools

and districts that are looking for ways to strengthen and develop the language resources of all of their students.

There are different DL program models. Some integrate native speakers of English and native speakers of another language, such as Spanish or Chinese, with the goal of promoting high academic achievement, first and second language development, and cross-cultural understanding for all students. Other DL program models provide instruction in two languages to native speakers of the same language, be it English (so-called one-way or foreign language immersion programs) or another language (developmental bilingual education programs). All these program models have a common goal of bilingualism and biliteracy and provide instruction in a language other than English at least 50% of the time. Furthermore, dual language programs, in particular the two-way immersion model, address the equity-related issue of segregation by integrating language minority speakers and native English speakers, on the principle that isolating language minority students in separate classrooms, programs, or schools is detrimental to their academic, social, and emotional growth (Brisk 2006).

3

Students in dual language programs are expected to develop literacy in English and the other language by the end of 5th grade (Howard & Sugarman 2007). There is a growing body of research on bilingual education that suggests that dual language programs, such as two-way immersion, have a positive impact on bilingual students' academic achievement in English (Lindholm-Leary & Borsato

2006; Lindholm-Leary & Block 2010; Marian, Shook, and Schroeder 2015; Thomas & Collier 2002, 2012; Valentino & Reardon 2015; Umansky & Reardon 2015). However, very few studies have examined the impact of these programs on students' academic achievement in the minority language (e.g., Spanish).

Among a few exceptions is a 5-year longitudinal research study of Spanish/English biliteracy development funded by the United States Department of Education and the National Institutes of Child Health and Human Development as part of the Developing Literacy in Spanish Speakers (DeLSS) research program. Findings from this nationally representative study have shown that in grades 2 through 5 two-way immersion students were performing well below native speaker norms for grade level performance on a standardized Spanish vocabulary measure, i.e., the *Vocabulario sobre Dibujos* subtest of the Spanish Woodcock Language Proficiency Battery-Revised (Woodcock 1991), with native English speakers' mean scores at particularly low levels (Howard and Sugarman 2007). Given that vocabulary skills both in Spanish and English have been found to relate strongly to English reading and writing outcomes for bilingual students (August & Shanahan 2006; García 1991; Nagy, García, Durgunoglu, & Hancin-Bhatt 1993; Proctor, August, Carlo, & Snow 2006; Proctor & Mo 2009), the low Spanish vocabulary scores of students in two-way immersion programs found in this study are of great concern.

While it is not possible to determine the cause of the low Spanish vocabulary scores of students in the DeLSS study, research over the last two decades has yielded mixed results in terms of how well DL programs have done in providing an equitable environment in which both languages are held to the same standards and producing equitable outcomes for all students. There are many dual language programs and classrooms that implement promising practices described in the literature on equity, but others that fall short. This phenomenon has been referred to as “leakage” (Freeman 1996) between the ideal and actual implementation of a program, which can be linked to the sociolinguistic and political context of dual language programs in the United States (Amrein & Peña 2000).

1. Role of Vocabulary in Reading Comprehension

Research on the acquisition of first-language reading skills has demonstrated a strong relationship between knowledge of word meaning and ability to comprehend passages containing those words (Anderson & Freebody 1981). In fact, the proportion of difficult words in a text has been found to be the single most powerful predictor of text difficulty, and a reader’s general vocabulary knowledge the single best predictor of how well the reader can understand text (Anderson & Freebody 1981). Thus, it is not surprising that the vast majority of upper-elementary school students with reading difficulties struggle with understanding word meaning and the comprehension of text.

While much less is known about how bilingual students become fluent readers at advanced levels, a recent review of experimental and quasi-experimental studies by the National Literacy Panel (August & Shanahan 2006) emphasizes the importance of vocabulary knowledge for bilingual students' continued success in reading development beyond third grade. A number of studies (Carlisle, Beeman, Davis, & Spharim 1999; Howard & Sugarman 2007; Nagy *et al.* 1993; Proctor *et al.* 2006) have shown that English reading comprehension is an area of weakness for Spanish-speaking bilingual students in the United States and that this is in large part due to their low vocabulary skills in both their native language (L1) and second language (L2). The association between vocabulary and reading comprehension in English is well established in the literature, but the relationship between vocabulary knowledge in the L1 and English reading comprehension has been much less studied and the findings less conclusive. For example, Proctor *et al.* (2006) found that Spanish vocabulary made a significant contribution to reading comprehension skills in English, above and beyond English vocabulary knowledge, for Spanish-speaking 4th grade students. However, in a more recent study by Lesaux and colleagues (2010a) Spanish vocabulary was not found to be a significant predictor of reading comprehension in English. Thus, further research on the potential contribution of Spanish language on English reading comprehension is warranted.

2. Effective Vocabulary Instruction

Despite the importance of vocabulary knowledge to literacy development, systematic vocabulary instruction in elementary schools remains extremely rare (Scott, Jamielson-Noel, & Asselin 2003; Watts 1995). Schools' emphasis on reading skills (word identification) in the early grades generally involves little challenging vocabulary (Becker 1977; Biemiller 2001). Moreover, in the upper elementary grades when the focus of reading instruction turns to the development of comprehension skills, vocabulary learning is believed to happen to a great extent incidentally through exposure to print. However, this belief has been challenged by some researchers who have shown that even for L1 learners the probability of acquiring an unknown word from context is only between 5 and 15 percent (Nagy, Herman, & Anderson 1985; Swanborn & de Glopper 1999).

7

The realization that reading alone is not a reliable method for promoting incidental vocabulary learning and reading comprehension development has resulted in a number of approaches to vocabulary instruction, with the ultimate goal of increasing the reading comprehension skills of participating students. The National Reading Panel (2000) identified 205 studies that proposed practices that were associated with improved comprehension. These programs generally included a combination of incidental learning and direct instruction that involved teaching individual words, teaching word-learning strategies for inferring the meanings of unfamiliar words, and providing multiple opportunities for new words to be encountered in authentic texts (Baumann, Edwards, Font, Tereshinski,

Kame'enui, & Olejnik 2002; Beck, McKeown, & Omanson 1987; Carlo *et al.* 2004).

A balanced approach to teaching vocabulary that includes explicitly teaching “high-utility” words and word learning strategies, such as recognizing word parts or cognates, and incorporating text into word study, has been proposed by some (Beck *et al.* 2002; Graves 2006; Kieffer & Leseaux 2008; Lesaux, Kieffer, Faller, & Kelley 2010b; Stahl & Nagy 2006; Nunes & Bryant 2006) as an instructional technique with the potential to alleviate the enormous word-learning task that students are confronted with—estimated between 2,000 and 3,000 new words a year by Anderson and Nagy (1992). The idea is to teach students words that are low frequency in oral language but high utility across domains, what has been called “general academic vocabulary” (Hiebert and Lubliner 2008) or “all-purpose academic vocabulary” (Snow, Lawrence and White 2009). These are words that are not usually taught in the classroom as, while they are very prominent in academic texts, both narrative and expository texts, they are not key words in content area or reading/language arts texts (e.g., *encounter*, *affect*, *observe*, *interpret*). Additionally, by teaching word-learning strategies, teachers will be providing students with the tools necessary to learn new words on their own, thus helping them develop vocabulary knowledge that is generative. Words and word-learning strategies are taught as they appear in text rather than in isolation.

8

Supporting empirical evidence of the effectiveness of a balanced approach to teaching vocabulary comes from the work done with English monolingual children by Beck and colleagues and Baumann and colleagues. Thus, for example, McKeown, Beck, Omanson, & Perfetti (1983) showed that rich vocabulary instruction in which students have multiple thoughtful encounters with words produces substantial gains in reading comprehension. Another study (Beck *et al.* 1987) demonstrated that it was possible to teach monolingual English-speaking children strategies for inferring meaning from context and at the same time provide enriched vocabulary instruction. This was achieved by engaging students in the exploration of different word meanings and associations between words on a repeated basis. Baumann *et al.* (2002) also showed that context clue instruction was effective in enabling fifth-grade students to derive the meanings of unknown words included in social studies texts, and when this instruction took place in combination with instruction on word-parts, students were able to transfer the knowledge of affixes acquired via instruction to new words containing those affixes, thus providing evidence for the generative nature of instruction on word-parts.

9

The vast majority of these studies were conducted with monolingual English speakers and thus it is not possible to generalize these findings to bilingual students. Recently, a few studies have adapted the procedures used with monolingual students and investigated their impact on bilingual students' vocabulary and comprehension development (e.g., Carlo *et al.* 2004; Kieffer &

Leseaux 2008; Lesaux *et al.* 2010b; Proctor, Dalton, & Grisham 2007; Snow, Lawrence, & White 2009). For example, Carlo *et al.* (2004) investigated the efficacy of a vocabulary enrichment program for fifth grade Spanish/English bilingual and English monolingual students. The vocabulary enrichment program involved direct vocabulary instruction, instruction in strategies such as making inferences from text, using cognates, and recognizing root words through word structure analysis, and communicative activities in small groups within and outside the classroom to expand and deepen students' understanding of word meanings. Both groups of students showed, to equal degrees, improved vocabulary knowledge and reading comprehension in English over the course of the 15-week intervention period relative to their non-instructed peers in the comparison group with effect sizes of .34 and .08 (eta squared) respectively. However, because Spanish literacy skills were not tested, one cannot assess whether the intervention had an impact on bilingual students' Spanish literacy skills.

10

A recent publication by Lesaux and colleagues (2010b) reports on an academic vocabulary intervention developed for 6th grade students and implemented in schools with a large percentage of English learners, most of whom were Spanish speakers. Each unit of the intervention focused on eight to nine high-utility words taken from the Academic Word List (Coxhead 2000), a corpus of general academic vocabulary that appeared in brief informational passages. Instructional activities included exposure to words in text, activation of prior knowledge of

words, work on words' meanings in the context of the passage read, work on other meanings of words (i.e., polisemy), morphological awareness activities and use of the words in writing. Having students work on each target word in all of these different types of activities allowed for multiple exposures to the words in different forms and in different meaningful contexts, which according to vocabulary researchers is crucial to developing rich knowledge of words (Beck *et al.* 2002; Stahl & Nagy 2006). Significant intervention effects were found on researcher-developed assessments closely aligned to the intervention that measured knowledge of words taught and morphological awareness, with (Cohen's *d*) effect sizes of $d = 0.39$ and $d = 0.22$ respectively. The effect of the intervention on a standardized assessment of reading comprehension was smaller, $d = 0.15$ and nonsignificant. These findings are consistent with findings from previous research (e.g., Carlo *et al.* 2004). As in the Carlo *et al.* study, the L1 skills of English learners were not assessed, and hence these findings only offer a partial picture of these students' language and literacy ability.

In addition to explicitly teaching words in context, vocabulary experts such as Michael Graves (2006) have advocated the teaching of strategies to acquire new words in text, such as morphological awareness and word consciousness. The role of morphological awareness on reading comprehension ability is examined by Kieffer and Lesaux (2008). These authors report on an intervention study with upper-elementary bilingual and monolingual students who were taught morphological awareness within the context of a vocabulary curriculum aimed at

improving students' English reading comprehension skills. Findings from this study suggest that not only was 4th and 5th grade students' ability to break down words related to their vocabulary knowledge and reading comprehension in 4th and 5th grade, but its contribution increased from 4th to 5th grade, such that in 5th grade morphology was a stronger predictor of reading comprehension than vocabulary. The contribution of morphology to reading comprehension in 5th grade was statistically significant even after controlling for the effects of vocabulary knowledge and other literacy skills. Moreover, morphology and vocabulary were found to be related in that students with stronger morphological skills were better at learning vocabulary and comprehending academic texts. Given these findings, the authors recommend including explicit morphology instruction, in particular derivational morphology (both affixes and roots), as part of an academic vocabulary curriculum.

12

A different type of generative vocabulary knowledge is word consciousness. Some researchers (e.g., Beck *et al.* 2002; Graves 2006; Scott & Nagy 2004) believe that in addition to teaching individual words and word learning strategies vocabulary instruction should foster an interest and love of words. The idea is to encourage students to pay attention to words through activities such as word exploration and word play (riddles, tongue twisters, etc.). A good way to reinforce the vocabulary learned in class and to promote depth of meaning is to ask students to look for examples of those words outside the classroom. For example, Beck and colleagues propose using a “Word Wizard chart” in which tally marks

are placed in front of students' names every time they come to class with an example of a word learned in class used in a different context outside of the classroom. This type of game can help students develop the habit of noticing new words around them and to learn their meaning by hearing or reading them repeatedly in multiple and varied contexts.

3. A New Study

Taken together, findings from these studies indicate that vocabulary instruction that focuses on teaching high-utility academic words and strategies, such as morphological and cognate awareness and word consciousness, can have a positive impact on the reading comprehension outcomes of upper-elementary (bilingual) students. Because the goal of Spanish/English two-way immersion programs is to prepare students to become literate, not only in English but in Spanish as well, we set out to investigate whether a vocabulary enrichment program in Spanish may have a positive impact on the Spanish reading comprehension outcomes of upper-elementary students instructed both in Spanish and English. Previous vocabulary intervention studies have focused on English language outcomes, and as such, the present study is, to our knowledge, the first one to investigate empirically the impact of a vocabulary enrichment program in Spanish for bilingual children in the United States.

13

The district where the study was conducted had a well-established Spanish/English two-way immersion program implemented in two elementary

schools, one middle school and one high school. At the elementary school level the program was 50/50 (approximately 50% instruction in each language) and reading instruction was provided in both languages at the same time. In order to attain the 50/50 split, different subjects were taught in the two languages, namely, math and science in Spanish and social studies and language arts in English. A recent evaluation of the program had identified a need for instruction in Spanish language arts, given the low scores obtained by students in the program in assessments of vocabulary and reading comprehension skills (namely, the *Vocabulario sobre Dibujos* and *Comprensión de Textos* subtests of the Woodcock Language Proficiency Battery-Revised or WLPB-R). As a result of findings of the evaluation, the year prior to the study the two elementary schools added a daily 30-minute period of Spanish language arts.

14

The transition was difficult as the Spanish teachers were used to teaching math and science and many of them did not feel comfortable teaching Spanish language arts. A year into the new system, the district hired the first author to provide some training at the beginning of the school year to all of the K-5 Spanish teachers in the district in the teaching of Spanish language with a special focus on vocabulary development and to evaluate students' performance at the end of the school year. The main goal of the training was to bring awareness among the Spanish teachers of the importance of explicitly teaching vocabulary, not only during Spanish language arts but in math and science class as well, and provide them with techniques and sample activities that they could use or adapt in their

classrooms. The first and second authors collaborated in the development of the training materials and the first author, a native Spanish speaker, administered all of the assessments.

Based on the purposive sample described above, this exploratory study used a comparative descriptive approach and a quasi-experimental research design on data obtained over the six-month period that the vocabulary program spanned. Prior to the implementation of the program the Spanish teachers in both schools attended a full day workshop conducted by the first two authors. The workshop provided training on the use of a set of vocabulary teaching techniques that combined direct vocabulary instruction with the teaching of word learning strategies. A series of activities (by grade level) were compiled to illustrate the use of such techniques and presented at the workshop. After a whole group training session, teachers broke down into groups by grade level and started to work on selecting the reading passages (a total of eight) and the words to be targeted for the vocabulary enrichment program (up to 10 per passage) and to develop lesson plans. The teachers continued to meet to work on their lesson plans during the duration of the program. See *Appendix A* for a sample lesson plan (for the sake of space one target word, *orgullo* [pride], has been selected to illustrate the types of activities included in the lesson).

15

The decision to implement a Spanish vocabulary enrichment program in the district was motivated by a concerted effort on the part of district officials, school

principals and teachers to respond to the low Spanish vocabulary and reading comprehension scores obtained by students in the program in a recent program evaluation. The principals of the two schools supported the implementation of the program, and so did the Spanish teachers, who had requested training on vocabulary enhancement strategies and were interested in learning new techniques to help their students develop stronger Spanish literacy skills. Thus, the project set out to fulfil a need identified by the school district and its different constituents.

Beyond the district, the study addresses the needs of many heritage language speakers (in this case, Spanish speakers) who are proficient in a language other than English by the time they enter United States schools, and benefit from maintenance and further development of their heritage language, while acquiring English. Additionally, the study builds on well-established research that indicates that a strong foundation in the heritage language may, in the long term, facilitate second-language development (Cummins 1979; Oller & Eilers 2002; Thomas & Collier 2002). For native English-speaking students, further development of their Spanish literacy skills is also imperative, if they are to become bilingual and biliterate, and experience the demonstrated cognitive and affective benefits of bilingualism.

16

4. Vocabulary Enrichment Program

The vocabulary enrichment program, which was implemented over a six-month period (a total of 20 weeks of instruction), employed a balanced approach that drew upon meaning-making activities and structural analysis in an effort to promote both depth and breadth of vocabulary knowledge. For example, introductory activities that provide definitions for the target words and examples of their use in context were used as a primary meaning-making activity, and those that called upon students to sort words according to word family or affix and required to analyze words parts (i.e., root and affixes) related to both meaning making and structural analysis. All activities incorporated methods found to be effective with language learners, such as the use of visuals and visualization; word learning strategies; role plays with words; writing sentences, stories, cloze exercises with words; making a word wall; having participants keep word cards or a word dictionary notebook; word games; and explicit review of key vocabulary at the end of each lesson (Beck *et al.* 2002; Graves 2006; Lesaux *et al.* 2010b). Finally, homework assignments focused on promoting word consciousness by having students identify target words outside the classroom (e.g., at home, in the newspaper, on television).

17

The vocabulary enrichment program began with a district level all-staff training that involved two elementary schools and teachers from Kindergarten through 5th Grade. A calendar of training and coaching was established with support from the administrators in each school and at the central office. The Spanish teachers in

the two schools implemented the vocabulary strategies learned in the training in their daily Spanish language arts lessons and dedicated about 10 to 15 minutes daily to the program. The second author visited classes and participated in planning sessions with teachers grouped per grade level. Fourth grade teachers and students from one of the schools were selected as a subgroup to take part in the exploratory study. In addition to the regular classroom visits, during the twenty weeks of the study, the second author conducted two observations of the three 4th grade classrooms in the school in order to confirm that the teachers were explicitly teaching vocabulary during Spanish language arts, and to provide feedback on the implementation of the vocabulary teaching strategies covered during the training.

18

The three teachers who participated in the program (two female, one male) were all native speakers of Spanish. They were veteran teachers, their classroom experience ranging from four to fifteen years. All of them had taught in the school for at least three years. They were all committed to bilingual education, with one of them having attended a dual language program herself.

The study focuses on student rather than teacher data. In particular, it explores the potential changes in the Spanish vocabulary and reading comprehension skills of 4th grade students in a two-way immersion program after participating in a Spanish vocabulary enrichment program. In order to obtain preliminary information about the performance of native Spanish speakers and native

English speakers in Spanish literacy measures over a six-month period, we conducted a comparative descriptive analysis using data from a non-concurrent control-group design. Because the school wanted to implement the program in all of the classrooms, it was not possible to obtain a control group of participants from the 4th grade cohort. This is a common situation in educational research and one constrained by ethical considerations. Data from a different but comparable cohort of 4th grade students from the same school collected two years earlier by the first author was used as comparison². The comparative descriptive analysis was conducted to find out how students who participated in the Spanish vocabulary program performed in Spanish literacy measures in comparison to students who did not participate in the program. Two specific research questions guided the study:

19

- (1) What differences in vocabulary skills can be detected for 4th grade native English and Spanish speaking students in a two-way immersion program at the conclusion of a Spanish vocabulary enrichment program?
- (2) What differences in reading comprehension skills can be detected for 4th grade native English and Spanish speaking students in a two-way immersion program at the conclusion of a Spanish vocabulary enrichment program?

² While not a pure control group, these students were comparable to students in the experimental group prior to the treatment, as they came from the same school, received Spanish instruction from the same instructional team who used the same curriculum and textbooks, and there were no major demographic changes during the two year span in which the two sets of data were collected.

5. Method

Participants

All 4th grade students at the school were invited to participate in the study (a total of 93), but only those for whom parental consent was obtained did so, which resulted in 63 participants in the experimental group from all three 4th grade classrooms, 22 native speakers of Spanish and 41 native speakers of English. Participants in the comparison group were 56 fourth-grade students, 28 native speakers of Spanish and 28 native speakers of English, from the same school. Data for the comparison group were collected two years earlier as part of a larger study (DeLSS) in which the first author participated, whose main objective was to investigate the development of biliteracy skills by Spanish-English bilingual students from grade two to grade five (for a description of the study and its findings see Howard & Sugarman 2007). Participants in the comparison group did not receive vocabulary instruction in Spanish beyond what was customary in their math and science classes. In fact, in contrast with students in the experimental group, students in the comparison group did not have an instructional period dedicated to Spanish language arts.

20

Table 1 displays the background characteristics of the final pool of study participants (i.e., only those students for whom pre- and post-test data are available). These data were obtained from school records. All students participating in the study had been in the program at least since 1st grade. Students classified as native Spanish speakers were those whose families had

reported speaking Spanish at home. By comparing the Spanish vocabulary and reading comprehension growth between the two cohorts, researchers were able to assess the impact of the vocabulary enrichment program on the development of these literacy skills. Additionally, by segregating the data by participants' native language, it was possible to evaluate the effects of the vocabulary program by native language group.

Table 1. Final Poll of Study Participants³.

Group	Comparison	Experimental	Total
Native language			
English	28	41	69
Spanish	28	22	50
Sex			
Male	28	35	63
Female	29	35	64
Ethnicity			
White	26	35	51
Hispanic	32	24	56
Black	5	4	9
Asian	0	1	1
Total	56	63	119

21

Measures

Prior to the onset of the vocabulary enrichment program, two subtests of the Spanish Woodcock Language Proficiency Battery-Revised (WLPB-R) standardized test (Woodcock, 1991), *Vocabulario sobre dibujos* and *Comprensión de textos*, were individually administered to participants by the first author in order to establish a baseline ability in these two areas. There is a total of 58 items in the

³ Defined as students who took both pre- and post-test only.

vocabulary subtest and a total of 43 in the reading comprehension subtest. Different starting points are identified depending on the grade level of the students.

Fourth-grade students start with vocabulary item #17 and comprehension item “Example A.” A basal is obtained after completing six items in a row successfully and a ceiling after answering six items in a row incorrectly, at which point the test administration stops. The vocabulary test requires the student to name both “familiar and unfamiliar pictured objects” (Woodcock 1991: 10), ordered by increasing difficulty, with each response scored as correct or incorrect by the examiner. The measure assesses both colloquial and more formal vocabulary. The reading comprehension test is a cloze test in which the student silently reads isolated sentences and short passages (including both narrative and expository texts) in order of increasing difficulty and produces an oral response to an unfinished sentence. The examiner then marks the response as correct or incorrect. On average it took approximately 15 minutes to administer the two subtests.

22

The same two subtests which had been administered as pre-tests, *Vocabulario sobre Dibujos* and *Comprensión de Textos*, were administered again as post-tests at the completion of the program by the same researcher in order to measure participants’ vocabulary and reading comprehension growth within the six-month span during which the instruction had taken place.

At two different time points during the duration of the program, the second author conducted classroom observations to monitor the implementation of the vocabulary enrichment program. After the post-test data were collected, she and the teachers had the opportunity to meet to reflect on the program accomplishments and to provide feedback that helped to formulate the staff development plans for the subsequent year.

6. Results

Vocabulary

While WLPB-R scores may be reported in several ways, for the purposes of this study we only considered raw scores. Raw scores were deemed appropriate given the exploratory nature of the study. We began by comparing the descriptive results. As shown in *Table 2*, both the experimental and comparison groups obtained higher scores in Spanish vocabulary from the pre- to the post-test. However, the experimental group appears to have made slightly greater gains than the comparison group.

23

Table 2. Raw Score Descriptive Statistics by Group (Vocabulary subtest). Spanish Woodcock Language Proficiency Battery-Revised (WLPB-R).

Group	Time	N	Mean	SD
Comparison	Pre	62	19.63	4.836
	Post	57	21.21	5.233
Experimental	Pre	64	18.80	5.056
	Post	63	21.59	4.424

When the scores were further disaggregated by participants' native language, we found that in both groups (experimental and comparison) native Spanish speakers' average vocabulary scores were higher than those of native English speakers (see *Table 3*). Finally, it is interesting to note that the average pre-test scores of native Spanish speakers in the experimental and comparison groups were almost identical, and the same was true of native English speakers' pre-test scores. This finding supports the appropriateness of the comparison group, as the two cohorts were found to be comparable (in fact, almost identical) in terms of their Spanish vocabulary knowledge prior to the instruction.

Table 3. Descriptive Statistics by Group and Native Language (Vocabulary subtest). Spanish Woodcock Language Proficiency Battery-Revised (WLPB-R).

Group	Native Language	Time	N	Mean	SD
Comparison	English	Pre	32	16.61	4.113
		Post	32	18.21	4.272
	Spanish	Pre	28	22.86	3.556
		Post	28	24.39	4.211
Experimental	English	Pre	41	16.76	4.048
		Post	41	20.07	3.952
	Spanish	Pre	22	22.91	4.174
		Post	22	24.41	3.899

24

In the second part of our analysis, statistically meaningful differences in these scores were tested using a correlated t test for the mean gains by group. This test accounts for the reduction in the standard error obtained from using the same subjects pre- and post, thus better reflects the meaningful nature of the gains than the uncorrelated comparison of means. In order to assess the potential impact of the treatment, gains and effect sizes were calculated separately by

native language (Spanish and English). Gains and effect sizes by group and native language are displayed in *Table 4* and are the result of the SPSS procedure T Test for Dependent Means.

As shown in this table by the t-test results, all four groups made statistically significant gains from pre- to post-test ($p < .05$). Moreover, when we examine the magnitude of the gains, or the effect sizes (Cohen's d), we see that native Spanish speakers in the experimental group made slightly larger gains than those in the comparison group ($d = .78$ and $d = .60$ respectively), but the difference is not as large as that between the two groups of native English speakers: experimental ($d = 1.22$) vs. control ($d = .62$). The native English speakers in the experimental group showed twice the gain in Spanish vocabulary as native English speakers in the comparison group, and native Spanish speakers in general, for that matter. This difference in gain scores by the English experimental group can also be seen in the large effect size of 1.22 shown by this group (more than one standard deviation from pre to post-test). These findings will be discussed in the discussion and conclusion section.

25

Reading comprehension

Reading comprehension was assessed using the Passage Comprehension subtest of the WLPB-R. *Table 5* displays mean pre- and post-test scores by group. As can be seen in the descriptive statistics shown in *Table 5*, on average both the experimental and comparison groups made gains in Spanish reading

comprehension from the pre- to the post-test. As was the case with vocabulary knowledge, the experimental group shows larger gains in reading comprehension than the comparison group. Moreover, given that the instruction focused on vocabulary development and not on reading comprehension skills, the fact that there are any gains at all in reading comprehension is noteworthy and corroborates results from previous studies that have found that vocabulary instruction has a positive impact on reading comprehension ability (e.g., Carlo *et al.* 2004; McKeown *et al.* 1983; Beck *et al.* 1987).

Table 4. Raw Score Gains and Effect sizes by Group and Native Language (Vocabulary subtest. Spanish Woodcock Language Proficiency Battery-Revised (WLPB-R). (*p<0,5).

Group	Language	Time	Paired Differences					t	df	Sig. (2-tailed)	Effect Size
			Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference					
						Lower	Upper				
Comparison	English	Pre Post	1.61	2.57	.486	-2.605	-.610	-3.306	27	.003*	0.62
	Spanish	Pre Post	1.54	2.55	.481	-2.523	-.549	-3.192	27	.004*	0.60
Experimental	English	Pre Post	3.32	2.71	.424	-4.174	-2.460	-7.823	40	.000*	1.22
	Spanish	Pre Post	1.50	1.92	.410	-2.352	-.648	-3.662	21	.001*	0.78

Table 5. Raw Score Descriptive Statistics by Group (Reading Comprehension subtest). Spanish Woodcock Language Proficiency Battery-Revised (WLPB-R).

Group	Time	N	Mean	SD
Comparison	Pre	62	16.37	5.555
	Post	57	18.05	6.125
Experimental	Pre	64	17.45	5.407
	Post	63	20.00	5.093

When the scores were further disaggregated by participants' native language, we found that native Spanish speakers' average reading comprehension scores appeared higher than those of native English speakers, and this was true of both the experimental and comparison groups (see *Table 6*). Again applying the correlated t test for the mean gains by group, all four groups made statistically significant gains from pre- to post-test ($p < .05$). As was the case with Spanish vocabulary, of the four groups, on average the native English speakers in the experimental condition showed twice the gain in reading comprehension in Spanish than the other three groups. This difference is evident in the effect sizes displayed in *Table 7*, with the native English speakers who participated in the program showing on average a large effect size ($d = 1.10$) and the other three groups a moderate effect size ($d \sim .50$). Reading comprehension and vocabulary findings will be discussed in the next section in light of vocabulary acquisition research.

27

Table 6. Raw Score Descriptive Statistics by Group and Native Language (Reading Comprehension subtest). Spanish Woodcock Language Proficiency Battery-Revised (WLPB-R).

Group	Native Language	Time	N	Mean	SD
Comparison	English	Pre	32	12.63	4.210
		Post	28	14.14	5.104
	Spanish	Pre	30	20.37	3.737
		Post	29	21.83	4.457
Experimental	English	Pre	42	15.05	4.400
		Post	41	18.17	4.883
	Spanish	Pre	22	22.05	4.029
		Post	22	23.41	3.528

7. Discussion and Conclusions

During the planning sessions by grade level, and in conversations related to professional development, it became evident that Spanish teachers in general (not just the 4th grade teachers) were paying more attention to vocabulary in their lessons than before the implementation of the program. There were banks of words on the walls, written on the board and highlighted in the students' writing notebooks. Moreover, teachers were doing oral and written activities that allowed students to put into practice the vocabulary targeted in the lessons. Thus, we feel that the training was successful in raising awareness among the Spanish teachers about the importance of devoting class time to vocabulary teaching, and thus the main goal of the initiative had been accomplished. To this date, many of the teachers involved in the training continue explicitly teaching vocabulary in their Spanish language arts classes.

28

Table 7. Raw Score Gains and Effect sizes by Group and Native Language (Reading comprehension subtest). Spanish Woodcock Language Proficiency Battery-Revised (WLPB-R). (* $p < 0.5$).

Group	Native Language	Time	Paired Differences					t	df	Sig. (2-tailed)	Effect Size
			Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference					
						Lower	Upper				
Comparison	English	Pre Post	1.43	2.559	.484	2.421	2.421	2.957	27	.006*	0.56
	Spanish	Pre Post	1.61	2.859	.540	2.716	.499	2.975	27	.006*	0.56
Experimental	English	Pre Post	2.98	2.697	.421	3.827	2.124	7.064	40	.000*	1.10
	Spanish	Pre-Post	1.36	2.838	.605	2.622	.106	2.254	21	.035	0.48

Regarding students' change, results show that the 4th grade students followed over a six-month period experienced gains in vocabulary and reading comprehension in a Spanish standardized assessment. However, given the small sample size and the non-randomized design of the study, results need to be taken with caution, as it is not possible to attribute a causal effect of the program on students' growth. An interesting finding is the fact that while the native English-speaking students receiving the vocabulary program made important gains in a six-month period (much larger than participants in the comparison group), the gains of the native Spanish speakers in the same program were much more modest and on par with those in the comparison group who did not participate in the program. Thus, while it is true that the Spanish-speaking students on average had higher vocabulary and reading comprehension post-test scores than the native English-speaking students, this is due to the fact that their pre-test scores were higher on average than those of the native English speakers. In the remainder of this section we will examine qualitative evidence that may shed light on these findings.

29

An examination of the lessons plans produced by the 4th grade teachers participating in the study yielded evidence of implementation of some of the strategies covered in the training. For example, all three teachers focused their vocabulary lessons on providing student-friendly definitions and examples of the target words taken from reading passages previously selected by the 4th grade team, and had the students practice using the words in several contexts provided

by them. However, there was little indication that students were encouraged to produce their own definitions or examples and were given additional opportunities to create their own contexts to further put into practice what they had learned, especially in extended discourse. An exception was a weekly activity that drew out of the vocabulary program in one of the classrooms, in which students were assigned a book to read each week and then they had to discuss it with an adult volunteer (parent or school staff). The teacher selected specific vocabulary for the adult to focus on during the weekly meetings with the student. This activity was a great success in many ways. Not only did it provide students with the opportunity to speak with a native speaker on a weekly basis, but by structuring the meeting to focus on specific vocabulary, it provided ample opportunities for students to fully understand the meaning of the target words and practice using them in an authentic context (e.g., retelling a story they knew well). Unfortunately, the activity was limited to one of the three classrooms, and given the small study sample, it was not possible to further disaggregate the data by classroom to examine its potential impact on students' vocabulary learning.

30

Some aspects of the program were not implemented as expected, such as the selection of words for instruction. During the training, teachers working in teams per grade level were asked to select a limited number of words per reading passage (five to ten words, depending on the grade level) to focus on during instruction. The criteria for selecting words for instruction put forward by Beck *et al.* (2002) were presented during the training. Beck *et al.* (2002) stress the

importance of word selection for instruction. While they do not provide specific guidelines for word selection, they propose targeting what they refer to as *tier two* words, that is, sophisticated words that have high utility across domains, but are less frequently encountered in oral language, as research has shown that instruction in these words can be most effective as it can add productively to a learner's language ability.

Although the teacher training centred around the importance of teaching *tier two* words, an analysis of the lesson plans produced by the 4th grade teachers revealed that the words they selected for instruction were mostly *tier one* words, that is, basic words that are used in every day conversations (some examples of the words selected are, *cocina* 'kitchen', *tienda* 'store', *vecino* 'neighbor', *parientes* 'relatives', *divertido* 'fun', *prisa* 'hurry', *cuidado* 'careful'). Given that *tier one* words consist of the most basic words, which rarely require instruction for native speakers, it is reasonable to assume that the native Spanish-speaking students already knew the meaning of most of the words targeted by the 4th grade teachers. At the same time, it is likely that many native English-speaking students may have benefited from targeted instruction on the selected words, as they may not have known the meaning of many of these words. This may help shed light on the results from the quantitative analyses. Native Spanish-speaking students in the vocabulary enrichment group, who were more than likely already familiar with many of the targeted words, were less likely to benefit from instruction in those words than native English-speaking students, for whom many

31

of the targeted words may have been unfamiliar. This would explain why on average the native English-speaking students made larger gains than the native Spanish-speaking students in vocabulary, and reading comprehension as well.

The fact that the 4th grade teachers targeted their Spanish vocabulary instruction to the needs of the native English speakers speaks to the lack of equity that is pervasive in the U.S. education system. Even in dual language programs that are meant to foster a learning environment that places the minority language and culture at the same level as that of English, so that within the program, at least, they are of equal status, it is not unusual to see situations such as the one described in this study, in which instruction in the minority language is watered down in order to accommodate the needs of native English speakers in the program at the expense of providing native speakers of the minority language with the best possible chance of developing high levels of proficiency in their native language. For dual language programs to be true to the goals of bilingualism and biliteracy, academic achievement and cross-cultural competence they must create the conditions necessary for overcoming the pressure of English as the higher status language from the wider society, not a small task.

The study has limitations. It is a first attempt at measuring the effects of a Spanish vocabulary program at its inception. While the program was implemented in the whole school, limited resources restricted the study sample to 4th grade

students in one of the schools, resulting in a rather small sample. Likewise, due to funding constraints, it was not possible to conduct the training follow-up and monitoring that would have allowed us to work more closely with the teachers during the implementation of the program and provide coaching as needed. Although a few classroom observations were conducted by one of the authors and follow-up meetings with some teachers, this was not enough to ensure that the teachers understood the importance of word selection or that they had the tools necessary to identify academic vocabulary. After all, as Lawrence and colleagues (2010: 23) put it: “When a teaching team designs and implements a program of whole-school vocabulary instruction, its most important decision is which vocabulary words to teach.”

33

In conclusion, findings from this comparative study show that in general the vocabulary enrichment program had a positive impact on fourth grade students’ Spanish vocabulary knowledge and reading comprehension skills as well. However, when findings are broken down by students’ native language, it is evident that on average native English-speaking students experienced noticeable growth in vocabulary and reading comprehension in Spanish during the six-month duration of the study, but the same was not as true of the native Spanish-speaking students. In order for all students to equally benefit from the program, more attention needs to be paid to the selection of words to be targeted by instruction. The target vocabulary should comprise words that students are less likely to encounter in oral language and are common across subject areas, as

these are words that they will need to know in order to understand the expository texts frequently found at the upper elementary level and beyond. Future studies should provide extensive training and ongoing feedback to teachers on the word selection process.

The benefits of the program can also be seen in the teachers. Before the study was conducted, staff development focused for the most part on strategies for teaching reading and writing, vocabulary instruction being often overlooked. Many of the teachers were not even aware of the differences between academic vocabulary and standard basic vocabulary. During the implementation of the Spanish vocabulary program, and in the summer following the program, teachers' enthusiasm toward teaching vocabulary was evidenced in their request for additional training. We are currently exploring possibilities to continue these efforts with a focus on providing more guidance to the teachers as to the process of selecting words that benefit both English and Spanish native speakers.

34

Appendix A Plantilla de Planificación - Lección de Vocabulario

Grado 3

Título de la historia y autor: «Yo me llamo Antonio», de Sabine Ulibarrí.

Lectura del texto: La maestra lee el texto a la clase o pide voluntarios para que lean un párrafo en voz alta.

Breve resumen del libro: Un niño defiende la pronunciación correcta de su nombre, porque desde pequeño se siente orgulloso de sí mismo y quiere que le llamen por su nombre completo. La historia habla de la importancia de respetar a los demás.

Palabras clave: mecer, deshonra, “pedir disculpas”, fuerte, honor, **orgullo**.

Contexto: En el texto, Don Antonio tenía el pecho henchido de **orgullo**.

Decir y mostrar: Repitan la palabra conmigo. Miren la palabra.

Explicar: **Orgullo** es un sentimiento que tenemos cuando algo que hemos hecho nos hace sentir bien. Es la satisfacción que sentimos cuando algo o alguien logra algo por sus propios méritos.

Ejemplos:

- Sentimos orgullo de/Estamos orgullosos de nuestra escuela porque aprendemos a ser bilingües.

- Me siento orgulloso porque estudié para mi prueba de sociales y saqué una “A”.

¿Alguien me puede decir una cosa de la que está o se siente **orgulloso**, algo que le da **orgullo**?

Interacción: Actividad: “Ejemplo” (*Example/Non-example*)

Voy a decir varias situaciones. Ustedes deben mostrarme si es algo que nos da orgullo o no.

- Hacer mi tarea y entregarla siempre a tiempo.
 - Copiarle la tarea a un compañero y entregarla a tiempo.
 - Comerme un helado.
 - Ayudar a un niño pequeño a encontrar a su familia.
- Practicar mucho un instrumento musical y poder presentarme en una asamblea de música instrumental.

36

Repetir palabra: ¿Cuál es la palabra que estamos aprendiendo? Orgullo (nombre), orgulloso/a (adjetivo).

Extensión: ¿Es el orgullo siempre una buena cualidad como el honor? ¿Cuándo puede no ser bueno ser muy orgulloso? Por ejemplo, si necesito ayuda para hacer la tarea, pero soy demasiado orgulloso/a para admitirlo y no pido ayuda. Ese podría ser un caso en el que no sería bueno ser orgulloso/a, ¿no?

Actividad de morfología

¿Qué otras palabras de la misma familia que orgullo conoces? Orgulloso/a (adjetivo), orgullosamente (adverbio).

Actividad de escritura

- Si los padres de un chico/a siempre están orgullosos de él/ella, ¿cuáles pueden ser algunas de las razones? Escribe un párrafo usando algunas de las palabras que has aprendido en la lección (por lo menos tres).

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42

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