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Home Language Literacy Development for Primary-Grade, Spanish-Speaking, English-Language Learners in Dual-Language Programs

Abstract

By 2050, the United States will be a majority minority country (NCSE, 2008). There are 11.4 million Spanish-speaking, English-language learners (ELLs) in America's public schools today, with many underperforming compared to their monolingual counterparts. While bilingual educational researchers have demonstrated higher student achievement gains over English-immersion models, bilingual education programs continue to be politically controversial. Identifying effective intervention strategies that use home language (Spanish) as the foundation to increase new language (English) skills is essential in closing this achievement gap. This quantitative, quasi-experimental, matched-pairs study examined the impact of the Helping Early Literacy with Practice Strategies (HELPS) intervention program for targeted, first-third graders in dual-language classrooms (N = 27). Students' reading fluency change rates were measured using the AIMSweb (R-CBM in Spanish) assessment tool. Treatment-group students received a two-hour block of reading instruction, which included the Spanish HELPS intervention, in one-to-one tutorial sessions, three times a week, for ten minutes a session, using a "manualized" program guide. Reading rates were compared with a control school that received only the two-hour literacy block. The results showed that there was a statistically significant difference between the change in reading fluency, as measured by the increase in correct words read per minute ($t = 3.08$, $df = 43$; two-tail $p = .004$). This study demonstrated that HELPS is successful in closing the fluency gap for English-language learners. Further studies are needed to assess the impact of increased fluency rates on students' self-confidence as well as the impact on other content area performance.

Document Type

Dissertation

Degree Name

Doctor of Education (EdD)

Department

Executive Leadership

First Supervisor

Jason Berman

Second Supervisor

Jeanette Silvers

Subject Categories

Education

Home Language Literacy Development for Primary-Grade, Spanish-Speaking, English-
Language Learners in Dual-Language Programs

By

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Submitted in partial fulfillment
of the requirements for the degree
Ed.D. in Executive Leadership

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Ralph C. Wilson, Jr. School of Education
St. John Fisher College

August 2014

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Dedication

This dissertation is dedicated to my loving family. Especially to my father, Robert Jack Liguori, who helped me through many hours of editing throughout the doctoral course work. I thank my mom, Rosemary, for always serving as a role model for me to know that I could accomplish anything I set my mind to. I also dedicate this to my wonderful boys, Michael and Aneal. Thanks, also, to my friends, Ruth, Jean, and Sharon who provided me with guidance and direction as needed. Without your help, I would not have been able to get through those most-challenging times.

This dissertation is also dedicated to my St. John Fisher College family. Thanks for the camaraderie and intellectual conversations from Cohort VII. This includes a heartfelt thanks to the BMW's: Kim, Carlos, Lloyd, and Sarah, my small group that provided support and encouragement throughout this process. We will ring the bell together!

This study is also dedicated to my Dissertation Chair, Dr. Jason Berman, and Committee Member, Dr. Jeanette Silvers, without whose guidance, feedback, encouragement, flexibility, and support this research project would have never been completed.

Finally, I want to thank all of the children who participated in this study; this research was done for you and future students so you may reach the highest levels of achievement possible and attain your goals.

Biographical Sketch

Michele S. Liguori-Alampi is currently the principal at James P. B. Duffy School #12 in the Rochester City School District, Rochester, New York. Mrs. Liguori-Alampi attended SUNY Brockport and graduated with a Bachelor's of Science in 1984 and a Master's of Science in education with a bilingual extension in 1989. She also obtained a Master's of Science in Educational Administration from St. John Fisher College in 2001. She came to SJFC in the summer of 2012 and began her doctoral studies in the Ed.D. Program in Executive Leadership. Mrs. Liguori-Alampi pursued her research in Home Language Literacy Development for Primary-Grade, Spanish-Speaking English-Language Learners in Dual-Language Programs under the direction of Dr. Jason Berman and Dr. Jeanette Silver and received the Ed.D. degree in 2014.

Acknowledgment

The candidate wishes to acknowledge the support provided for the completion of this doctoral research study by the Rochester City School District Office of Professional Learning. This department graciously provided financial support for the training session facilitated by the HELPS program developer, Dr. John Begeny, Associate Professor at North Carolina State University.

Abstract

By 2050, the United States will be a majority minority country (NCSE, 2008). There are 11.4 million Spanish-speaking, English-language learners (ELLs) in America's public schools today, with many underperforming compared to their monolingual counterparts. While bilingual educational researchers have demonstrated higher student achievement gains over English-immersion models, bilingual education programs continue to be politically controversial. Identifying effective intervention strategies that use home language (Spanish) as the foundation to increase new language (English) skills is essential in closing this achievement gap.

This quantitative, quasi-experimental, matched-pairs study examined the impact of the Helping Early Literacy with Practice Strategies (HELPS) intervention program for targeted, first-third graders in dual-language classrooms ($N = 27$). Students' reading fluency change rates were measured using the AIMSweb (R-CBM in Spanish) assessment tool. Treatment-group students received a two-hour block of reading instruction, which included the Spanish HELPS intervention, in one-to-one tutorial sessions, three times a week, for ten minutes a session, using a "manualized" program guide. Reading rates were compared with a control school that received only the two-hour literacy block. The results showed that there was a statistically significant difference between the change in reading fluency, as measured by the increase in correct words read per minute ($t = 3.08$, $df = 43$: two-tail $p = .004$). This study demonstrated that HELPS is successful in closing the fluency gap for English-language learners. Further studies are

needed to assess the impact of increased fluency rates on students' self-confidence as well as the impact on other content area performance.

Table of Contents

Dedication	iii
Biographical Sketch	iv
Acknowledgment	v
Abstract	vi
Table of Contents	viii
List of Tables	xi
Chapter 1: Introduction	1
Introduction	1
Problem Statement	4
Theoretical Rationale	6
Statement of Purpose	16
Research Questions	16
Potential Significance of the Study	17
Definitions of Terms	18
Chapter Summary	20
Chapter 2: Review of the Literature	22
Introduction and Purpose	22
Chapter Summary	49
Chapter 3: Research Design Methodology	51
General Perspective	51

Research Context	53
Research Participants	55
Study Design and Variables	59
Data Collection Instruments	60
Procedures Used.....	61
Data Analysis	64
Summary of Methodology	65
Chapter 4: Results	66
Introduction.....	66
Research Questions	66
Data Analysis	66
Results.....	67
Additional Findings	69
Summary of Results	70
Chapter 5: Discussion	71
Introduction.....	71
Implications of Findings	71
Limitations	73
Recommendations.....	75
Conclusion	77
References.....	83
Appendix A.....	88
Appendix B.....	89

Appendix C	94
Appendix D	95
Appendix E	101
Appendix F.....	103
Appendix G.....	112

List of Tables

Item	Title	Page
Table 3.1	Demographic Comparison between Selected School Sites	54
Table 3.2	Student Participants Matched Pairs Summary	57
Table 3.3	Tutor Implementation Fidelity Summary Results	58
Table 3.4	Research Design Procedural Timeline	63
Table 4.1	Treatment and Control Sample Description	67
Table 4.2	Parameter Estimates of the <i>t</i> -Test	68
Table 4.3	HELPS: Impact of WCPM by No. of Sessions	69

Chapter 1: Introduction

Introduction

The reading education of English-language learners (ELLs) in the United States has become a major concern in educational practice and policy. This issue is exacerbated by the rapid increase in immigration (NCES, 2013). In fact, the NCES reported that in 2010–2011, the percentage of ELLs in public schools increased to 10% of the total population. This means there are 4.7 million ELLs in our nation’s schools today. As the population of minority students increases, the majority White population is on a steady decline. In fact, between the fall of 2000 and the fall of 2010, the number of White students decreased from 28.9 million to 25.9 million, and their numbers fell from 61 to 52% of the entire school population. Conversely, the percent of Hispanic public school students increased from 16 to 23%, or from 7.7 million to 11.4 million of the total school population (NCES, 2013). As of 1999, there were 14 million Americans between the ages of 5 and 24 who spoke another language in their homes (Slavin & Cheung, 2005).

The increased number of ELLs creates challenges for school systems that are not equipped to address their linguistic needs. ELLs persistently underachieve compared to their majority counterparts. There are higher numbers of ELLs living in poverty who are more likely to drop out of school, perform significantly below monolingual children (Dominguez de Ramirez & Shapiro, 2007), and/or are over represented in lower ability groupings (Genesee, Lindholm-Leary, Saunders, & Christian, 2009). This performance data is confirmed by a National Center for Statistics (2013) report. During the 2010–2011

school year, the achievement gaps between ELL and non-ELL students on the National Assessment of Educational Progress (NAEP) reading assessment were 36 points at the fourth-grade level and 44 points at the eighth-grade level. It is essential that the nation identifies effective methods to educate language minority students.

Bilingual education research. The body of research on bilingual education effectiveness is vast and often times politically controversial. For example, in their comprehensive meta-analysis of educational services provided to language minority students, Thomas and Collier (2002) demonstrated that enrichment 90-10 and 50-50, one-way or two-way developmental bilingual programs (or dual-language or Spanish-immersion models) were the only programs that produced true bilingual students that attained high levels of academic achievement. Thomas and Collier (2002) also found that ELLs placed in English-only classrooms had the lowest rates of long-term achievement in English. The age of arrival to the country (MacSwan & Pray, 2005) also impacted the length of time needed to reach higher academic rates in English (Thomas & Collier, 2002). There have been other long-term studies (e.g., the meta-analysis study of August & Shanahan, 2006) to determine effective instructional programs to better meet ELLs' needs.

The Intercultural Development Research Association (IDRA) was founded in 1999 by the U.S. Department of Education, Office of Bilingual Education and Minority Language Affairs (OBEMLA) to identify high-performing bilingual schools (Montecel & Cortez, 2002). Montecel and Cortez found that successful schools (a) developed high levels of oral-language proficiency in both native language and English, (b) created proficient bilingual writers by fifth grade, (c) reached state and district standards in

English content area instruction, and (d) met or exceeded state and district standards in native-language, content-area instruction.

English reading instruction. Other researchers have identified best practices for reading instruction. Most of this research was completed for monolingual, English-speaking children. The National Reading Panel (NRP; National Institute of Child Health and Human Development, 2000) identified five elements needed for effective reading instruction. These elements were (a) phonics, (b) phonemic awareness, (c) reading fluency, (d) vocabulary development, and (e) reading comprehension. Denton, Anthony, Parker, and Hasbrouck (2004) confirmed that many of these same skills were needed for ELLs learning English. They posited that it was essential to connect English instruction to native language use for greater student performance. They found that explicit instruction in decoding and phonemic awareness, vocabulary development, and metacognitive strategies were effective in raising English proficiency levels.

Bilingual reading proficiency. The National Literacy Panel on Language-Minority Children and Youth was tasked by the U.S. government to apply these strategies to address the needs of language minority students learning English (August & Shanahan, 2006). The panel of researchers was charged with identifying, assessing, and synthesizing research on the education of language-minority children and how they could best acquire English literacy skills (August & Shanahan, 2010). This research focused on what was the appropriate role of native language in educating ELLs as they learned English. They found that some use of native language (L1) produced higher levels of English proficiency rates than English-immersion models. The use of L1 was confirmed by many

researchers in the field (Lopez & Tashakkori, 2004, 2006; Montecel & Cortez, 2002; Rolstad, Mahoney, & Glass, 2005a; Thomas & Collier, 2002).

Researchers continue to debate how native language should be used to enhance ELLs' academic reading performance in English (August & Shanahan, 2006; August, Snow, Carlo, Proctor, Rolla de San Francisco, Duursma, & Szuber, 2006). One English-reading intervention program, Helping Early Literacy with Practice Strategies (HELPS) (Begeny, 2009), was effective with second-grade, Spanish-speaking English language learners. Students receiving the HELPS intervention program three times a week, for 10 minutes a session, for five months, significantly outperformed those students in the control group on a standardized measure of fluency. Begeny, Ross, Greene, Mitchell, and Whitehouse (2012) further modified the HELPS program to provide Spanish-speaking primary-grade children with reading intervention supports in Spanish. This study uses the Spanish HELPS program with Spanish-speaking, primary-grade children in dual-language classrooms.

Problem Statement

The purpose of this quantitative, pre/post-test, quasi-experimental, matched-pair group study was to assess the efficacy of using one effective early-literacy development strategy program for primary grades, Spanish-speaking ELLs in dual-language classrooms.

Bilingual students are hindered in their achievement when they lack proficiency in their native language prior to transition to English literacy development (Cummins, 1979). When students transition too early to formal English instruction, they actually become less proficient in both languages (Thomas & Collier, 2002). Since the release of

the National Literacy Panel on Language-Minority Children and Youth (August & Shanahan, 2006), there have been 20 additional experimental and quasi-experimental studies that measured the success of six literacy skills in minority-language children. These skills were: phonological awareness, phonics, reading fluency, vocabulary, reading comprehension, and writing. Their findings indicated that what works for monolingual English speakers is also effective for ELLs' literacy development. Similar results were found with those studies that assessed reading fluency and vocabulary development. August and Shanahan (2010) posited, that although there is little new evidence since their meta-analysis cut-off date in 2002, these new studies affirmed that effective literacy instruction is similar for both native English speakers and ELLs; suggesting that some modifications should be made based upon native-language structures. They recommended future studies should explore ways to use native home language within instructional routines that develop explicit attention to vocabulary development and connect to the native language. They suggested future research explore methods to check for comprehension through the use of retelling and rephrasing for ELLs. August and Shanahan (2010) recommended further research to determine “whether primary language instruction is more or less beneficial for some students, whether more primary language is better than less, what are the most effective ways to combine the primary language and English into a coherent instructional program, and the effective use of the primary language to support instruction in English” (p. 345–346).

Previous studies (August et al., 2006; Cummins, 1979; Proctor, August, Carlo, & Barr, 2010) demonstrated that providing reading instruction in Spanish can improve reading skills in English and promote bilingualism in students. Begeny et al. (2012)

designed the HELPS program to answer the question of how Spanish native-language fluency can assist Spanish-speaking, English-language minority students fully develop their native language and impact English language fluency. Begeny et al. (2012) recommended that future studies using HELPS in Spanish would improve native Spanish-speaking ELLs' reading in English as well as in Spanish. This study added to the research by providing a replication study. Using the Spanish HELPS materials, this research design assessed Hispanic ELLs' reading fluency using a different standardized assessment measure. The study is fully explained in Chapter 3.

Theoretical Rationale

There is strong theoretical research to support the use of native-language development to enhance English-language learning. The threshold model (Cummins, 1979) provided the basis for this research design. This section explains the premise of this theory.

Definition of BICS and CALPS. Basic interpersonal communication skills (BICS) and cognitive-academic language proficiency (CALPS) were developed by seminal bilingual researcher Jim Cummins (1979). Cummins designed this framework to explain the various levels of language proficiencies developed by ELLs within bilingual settings. BICS include the day-to-day language skills needed to interact with people. CALPS can be defined as “the language knowledge, together with the associated knowledge of the world and metacognitive strategies, to function effectively in the discourse of school” (Cummins, 2000, p. 67). These terms are used within second-language acquisition models to instruct ELLs and determine when they should exit from bilingual education programs. Cummins (1981), as cited in Jasmer (2010), theorized that

ELLs develop two types of language proficiency that require different lengths of time and complexity to grow. BICS are social skills that can be developed in one to two years after the arrival into the new country. CALPS are content embedded and require five to seven years to fully develop. Cummins (2000) used the terms BICS and CALPS interchangeably with conversational and academic proficiencies. These terms are further explained in the next section.

Cummins (2000) also distinguished the types of programmatic decisions for English-language learners. He defined subtractive bilingualism as the loss of the first language when the second language replaces native language use within the school setting. The opposite, or additive bilingualism, is considered an enrichment as

The continued development of bilingual children's two languages during schooling is associated with positive educational and linguistic consequence . . . that is not just a societal resource; it is also an individual resource that potentially can enhance aspects of bilingual children's academic, cognitive and linguistic functioning. (p. 175)

A history of BICS and CALPS. Cummins (2000) developed his theory of BICS and CALPS out of concern for ELLs being exited too early from bilingual educational programs during the 1970s. Cummins studied data on immigrant students' English-literacy acquisition and transition from bilingual into mainstreamed educational programs in Toronto, Canada. His research identified the need to define the differences in language abilities among recent immigrant arrivals. He argued that developing native-language proficiency enabled students to transfer their knowledge to second-language learning (Cummins, 1979). He further argued that educators and policy makers were assuming

that when children reached oral proficiency levels, they would easily master the academic demands requiring high cognition levels. Cummins stated that this failure to recognize the cognitive demands and linguistic difficulty required for school success was a major reason ELLs continued to underperform academically.

Cummins is recognized as a leader in the field of bilingual education (see, e.g., Edelsky, Hudelson, Flores, Barkins, Altweger, & Jilbert, 1983; Jasmer, 2010; MacSwan, 2000) and a strong proponent of bilingual education programs that maintain native-language proficiency (or additive bilingualism). The BICS/CALPS model refuted the early exit from bilingual programs because it resulted in loss of native-language proficiency or subtractive-bilingualism policies (Cummins, 2000).

Additionally, Cummins (2000) developed the BICS/CALPS theory to counter the then-current beliefs by researcher John Oller (1979), as cited in Cummins (2000). Oller found a strong correlation between ELLs' performance on cognitive measures, such as cloze and standardized tests and oral measures to assess vocabulary. This led to his identifying just one underlying factor for language aptitude, which he called "global language proficiency." Cummins felt Oller was one dimensional in his thinking and that his theory did not distinguish between the knowledge types and language skills that children developed. He stated

Some aspects of children's first language development (e.g., phonology) reach a plateau relatively early, whereas other aspects (e.g., lexical knowledge) continue to develop throughout our lifetimes. Thus, these very different aspects of proficiency cannot be considered to reflect just one unitary proficiency dimension. (2000, p. 59)

Cummins (2000) based his BICS/CALPS distinction upon the previous work of many researchers. For example, Vygotsky (1962), as cited in Cummins (2000), theorized that language emerged as a social function or spontaneously. Social language evolved out of the need to communicate in highly contextual settings that developed unsystematically. It also allowed the learner to acquire social norms, values, and language behaviors. The scientific concepts were developed in the academic setting that were highly structured and systematized, such as at school.

Bruner's model of communicative and analytic competence also supported Cummins's theory. Bruner (1962), as cited in Cummins (2000), defined communicative skills as "the ability to make utterances that are appropriate in the context in which they are produced and to comprehend utterances in the context in which they are encountered" (p. 61). This thinking aligned with Cummins's theory of conversational skills. Analytic competence uses language to think and learn and is fully developed in the formal school setting, which correlates to Cummins's CALPS.

Cummins supported the BICS and CALPS proficiencies by relating these distinctions to native-language development. He elaborated that conversational skills are already developed in five-year olds upon entering kindergarten. Educational systems then spend the next 12 years developing academic language. During the 1980s, Cummins expanded his own theory further when creating a framework that distinguished and quantified different linguistics and cognitive demands ELLs needed to master. He explained, "The BICS/CALPS distinction was elaborated into two intersecting continua . . . which highlighted the range of cognitive demands and contextual support involved in

particular language tasks or activities (context-embedded/context-reduced, cognitively undemanding/cognitively demanding)” (Cummins, 2000, p. 59).

Within this framework, Cummins differentiated between cognitive and contextual demands within the school setting. Using a quadrant method (see Appendix A for model), Cummins distinguished the different linguistic and academic proficiencies needed to move throughout this continua. Language and cognitive activities moved from social competence, which were often contextually embedded and content reduced, to highly structured academic tasks, which were often contextually reduced and content embedded. The top two quadrants (A and C) represent cognitively undemanding tasks. The bottom two quadrants (B and D) are cognitively demanding; making Quadrant D the most challenging to master. As students moved through the grades, they had to master both linguistic and academic skills that included vocabulary, concept load, syntactic features, and discourse conventions in an ever-increasing complexity. While not linear in nature, context-embedded, content-reduced skills are more easily acquired by ELLs (Cummins, 2000).

This BICS/CALPS model had clear implications for educators and was designed to guide policy and program decisions for English-language learners. Other researchers fully supported this framework when describing effective bilingual programs for ELLs (Krashen, 1982). Krashen theorized making lesson content, or input, as comprehensible as possible (i.e., in Quadrant B) aided in ELLs’ academic language proficiency.

Criticism of the BICS and CALPS theory. There are numerous opponents among pro-bilingual researchers that take issue with Cummins’s theory of conversational and academic proficiency (see Cummins, 2000; Edelsky et al., 1983; MacSwan, 2000).

Although some critics were vehemently opposed to elements of Cummins's theory, it is clear they held each other in high regard. For example, the critique of Edelsky et al. (1983) began by stating, "We support bilingual education (p. 1)" and, when referring to Cummins's theory stated, "it is a theory we believe is sophisticated, appealing, well-argued, unquestionably well-intentioned, and wrong" (p.1).

Cummins (2003) counter argued that the attack of Edelsky et al. (1983) on his BICS/CALP theory was due to strong beliefs around whole-language pedagogy. In fact, he expanded his theory to "emphasize the importance of going beyond whole-language or liberal/progressive pedagogy" (Cummins, 2000, p. 90) into a transformative pedagogy. Cummins (2009) wrote extensively about this transformative multi-literacies pedagogy model as a way to close the achievement gap between underachieving minority students. This framework focused on the sociopolitical and socioeconomic roots of ELLs' underachievement in the classroom. Cummins (2000) concluded that by creating cognitively demanding, context-embedded approaches (Quadrant B), schools can promote students' higher-order thinking skills to understand their social realities and empower themselves.

Edelsky et al. (1983) identified several shortfalls in Cummins's research. They argued that his theory inherently promoted a deficit model that actually blamed the victim. In other words, Cummins did not question what schools considered for reading proficiency and that CALPS were nothing more than effective test-taking skills. They alleged that actual CALP proficiency was nothing more than "test-wiseness." She added that these test measures led to blaming the students for lack of progress, reinforcing the deficit model thinking.

Cummins (2000) rebutted the points against their deficit-thinking accusation. He stated that Edelsky et al. (1983) presented no explicit criteria to constitute a deficit theory; student linguistic experience certainly did not qualify. Secondly, renouncing all testing was “simplistic and fails to account for considerable data documenting strong positive relationships between test scores and ‘authentic’ assessment measures” (Cummins, 2000, p. 91).

Edelsky et al. (1983) further criticized Cummins’s interpretation of CALPS as not assessing true cognitive abilities. They claimed that BICS were not just surface-social skills but could be complex and cognitively challenging. This interpretation was reinforced by MacSwan and Rolstad (2003), who proposed an alternative view to CALPS. They argued there must be a distinction between language ability and academic achievement, and this should stand along with native-language ability. They called this distinction “second-language instructional competence” (SLIC). Cummins (2000) countered the accusation. He stated that CALPS were never intended to be viewed in isolation; they were considered one aspect impacting societal and educational practices that influenced students’ academic progress.

A second argument against Cummins’s theory was that BICS/CALPS reinforced a semilingualism model. Edelsky et al. (1983) stated,

When it is bilingual or low SES children who are found to be lacking in such abilities, Cummins says this is the result of semilingualism, less than native competence in each language (C. 1979:230). Semilingualism is “clarified” as not being a “strictly linguistic concept at all,” but a concept pertaining to “cognitive aspects of the language, understanding of the meaning of abstract concepts,

synonyms, etc., as well as vocabulary” (C. 1979:231). This is also a description of cognitive academic language. In other words, low proficiency in academic language is not due to semilingualism; it *is* semilingualism—another tautology.” (1983, p.10).

Therefore, reinforcing semilingualism, as a concept to explain ELLs’ school failure, solidified the deficit-thinking model (MacSwan, 2000).

Cummins (2000) countered that the “construct of semilingualism has no theoretical value in describing or explaining the poor school performance of some bilingual students” (p. 99). He added that academic language proficiency is crucial to students’ academic progress. He stressed this achievement gap did exist among ELLs and their majority counterparts, adding: “critiques of the construct of ‘semilingualism’ have failed to contribute much to the understanding of the underlying issues” (p. 99).

The final argument of Edelsky et al. (1983) against Cummins’s theory addressed the research premise, the data collected, and the constructs used. They reported issues with flawed premise, data, design, and assessments. In short, she argued that Cummins accepted current definitions of reading success, as measured by ineffective methods for reading and literacy proficiency.

Cummins responded to these criticisms over the years (2000). In summary, he reminded critics that his theory was designed to prevent ELLs’ early exit from existing bilingual programs. Cummins also vehemently maintained the sociopolitical perspective that Edelsky et al. (1983) dismissed. He clearly supported students’ success as a method of community empowerment, stating, “Pedagogical approaches that empower students

encourage them to assume greater control over setting their own learning goals and to collaborate actively with each other in achieving their goals” (Cummins, 2000, p. 90).

Evidence that BICS and CALPS work in practice. Cummins’s research has greatly influenced instructional practice (Edelsky et al., 1983; MacSwan, 2000), federal and state policies, timelines for second-language acquisition programs (Dixon, 2012), and student placement in various bilingual programs (Jackson, 2008). This section highlights several studies demonstrating BICS and CALPS’ application in real-world programs.

One researcher, Dixon (2012), confirmed Cummins’s program-duration guidelines that English-language learners needed to fully acquire BICS and CALPS. Dixon analyzed archived data from 1,311 current and former ELLs to measure rates of linguistic growth. All types of learners were included—students with disabilities, gifted and talented, and general-education students. She found significant differences in students’ rates of language acquisition, with those with disabilities requiring 8.933 years to reach proficiency. ELLs without exceptionalities required 5.423 years. Results also favored all types of students in bilingual-education programs. These findings reinforced Cummins’s premise that bilingual children required five to seven years for language proficiency and that bilingual education enhanced students’ English language skills.

Recent state legislative decisions have mandated programmatic options for English-language learners in some parts of the United States. These mandates often conflict with what researchers found works best for ELLs’ acquiring English. For example, Arizona passed Proposition 203 in 2000 that mandated English-only instruction for English-language learners, thus, eliminating bilingual program options.

Jackson (2008) studied the legislative impact on one minority group. Her findings proved that bilingual programs developed the same, or comparative, reading comprehension levels of Navajo students enrolled in dual-language, full-immersion, and sheltered-English immersion programs in Arizona. Reading gains were analyzed, using quantitative methodologies and a quasi-experimental design. Measures used to compare performance included: the Arizona Instrument to Measure Standards (AIMS); the Diagnostic Instructional Basal Educational Language (DIBELS); and the Curriculum Based Measurement (CBM). The results of this study showed that dual-language (DI) and full-immersion (FI) programs showed no significant difference in reading fluency scores compared to the sheltered English-immersion program (SE). Jackson stated,

The broad implications of this study are that the language immersion programs examined do not hinder academic learning. To the contrary, the dual language and full immersion programs offer students the opportunity to learn another language, maintaining high academic standards, and be able to maintain similar or higher scores of reading comprehension, and reading fluency scores. (p. 81)

These outcomes fully supported Cummins's premise that gaining academic English reading skills is an essential long-term goal for minority students, rather than short-term conversational English needs. In other words, BICS and CALPS must be developed for long-term student success.

Rolstad, Mahoney, and Glass (2005b) conducted another compelling study supporting Cummins's theory. Their meta-analysis analyzed three national studies and one conducted in Arizona (N = 4). They evaluated the effectiveness of bilingual education programs between 1985 and 2005. Their findings confirmed a positive impact

of bilingual instruction on all measures of English performance. They concluded that all four meta-analyses were “[an] especially high effect size for tests in the students’ native language [and] show the added benefit of bilingual education, which permits students to develop an ability to engage academic content in two languages” (p. 61). These findings supported Cummins’s theory that bilingual programs fully develop the academic language skills (CALPS) in two languages and exemplified additive bilingualism.

Statement of Purpose

The purpose of this study is to assess the efficacy of the HELPS program, aligned with Cummins’s threshold theory of second-language acquisition application as applied to the development of native-language fluency skills in primary Spanish-speaking, English-language learners.

Research Questions

The research questions that guided this study were:

- Do first- and second-grade supplemental, early-literacy interventions, delivered in Spanish, increase the rate of fluency, as measured by the AIMSweb (R-CBM-Spn) screening reading assessment, for English-language learners in dual-language programs?
- Do third-grade supplemental, early-literacy interventions, delivered in Spanish, increase the rate of fluency, as measured by the English AIMSweb (R-CBM) screening reading assessment, for English-language learners in dual-language programs?

Potential weaknesses. There were several potential weaknesses that affected the results of this study. One major obstacle to success was finding enough Spanish-speaking

tutors and volunteers to commit to a five to seven-month program. To resolve this issue, the treatment school hired bilingual intervention teachers with Title I funds. Additionally, a bilingual paraprofessional staff member was designated as an intervention tutor for the majority of the instructional day.

Another obstacle was the ability to train new volunteers after the initial October training session. This was resolved by recording the training sessions and making them available for any new tutors that joined the program at a later date.

A third possible barrier to the study completion was the lack of students that qualified for the HELPS program, based upon the program selection criteria. To avoid this issue, students in first through third grade were evaluated for program selection. First graders were added after the Winter AIMSweb assessment and started interventions in March. This late entrance allowed for 10 weeks of intervention support, not meeting the minimum three-month threshold outlined in the original HELPS research design (Begeny, 2009).

Potential Significance of the Study

It was essential to identify methods that improve ELLs' academic performance and reading abilities. The research continues to show that ELLs are at greater risk for reading and school failure. Although this paper does support a pro-bilingual viewpoint, there is clear evidence that under-represented minority students continue to lag well behind their United States majority counterparts (Nieto, 2005). This gap in performance is further compounded because 61% of the 46 million Hispanic children in the United States currently live in high poverty (Suarez-Orozco & Suarez-Orozco, 2009).

Researchers Cirino, Vaughn, Linan Thompson, Cardenas-Hagan, Fletcher, & Francis (2009) purported that intensive early intervention support can close this gap in early literacy development. With the current focus on assessment and high-stakes testing, Nieto (2005) stressed that it was critical to identify effective strategies to close this gap.

According to the district data warehouse, where this study took place, there are over 8,000 students who speak a home language other than English, with 3,447 ELLs, representing 11.7% of the total school population for the 2013–2014 school year. Over 1,253 students are in bilingual education programs. The district largely comprises ethnic minorities, with 60.1% Black or African American and 25.5% Hispanic. Yet, only 3.9% of ELLs (compared to 24.9% for the total general-education population) passed the New York State English Language Arts (NYS ELA) assessments, and 9.9% (compared to 31.5% for the total general-education population) passed the Math assessments for grades 3 through 8 during the 2011-2012 school year (Oracle B1 Dashboards, 2014). Therefore, it is essential to identify effective instructional practices to close the achievement gap in English- and native-language reading skills acquisition for English language learners within bilingual programs.

Definitions of Terms

The following definitions of terms are germane to bilingual education research and were used throughout this study:

Term	Definition
Additive bilingualism	The concept that students acquire their second language (L2) while maintaining their native language (L1) and preserving their cultural heritage connections. In this bilingual setting, the students are “likely to attain a high level of competence in the second language at no cost to their level of competence in the first language” (Cummins, 1979, p. 2).
Basic interpersonal communication skills (BICS)	Term used by Cummins (2009) that includes the day-to-day language skills needed to interact with people. These are also referred to as “conversational skills” (personal communication, Rebecca Field, 2013).
Cognitive academic language proficiency (CALPS)	“Language knowledge, together with the associated knowledge of the world and metacognitive strategies, to function effectively in the discourse of school” (Cummins, 2000, p. 67).
Dual language (DL) (or two-way) bilingual programs	Programs that use both native language and second language to develop students’ cognitive and literacy skills, while valuing the social-political status of both languages. Students enrolled in DL programs come from English-only and from a home language other than English (in this case, Spanish). The goal of dual-language programs is “to develop cross-cultural understanding, bilingualism, and

biculturalism in all students” (Beeman & Urow, 2013, p. 19).

Sheltered English (or immersion) programs The phenomenon of immersing students in a second language instructional environment when the first language is not used for instructional purposes (Cummins, 1998).

Subtractive bilingualism The loss of the first language when the second language replaces native language use within the school setting (Cummins, 2000). This is a concept supported by the English-only movement and recent legislative decisions that promote the use of English-only programs or transitional-bilingual programs that phase out the use of the first language (Duignan, 1998).

Transitional (or Developmental) bilingual education programs Programs designed for students that are specifically for English-language learners (Beeman & Urow, 2013).

Chapter Summary

Bilingual education practitioners and advocates have embraced Cummins’s theory of BICS and CALPS. His quadrant framework helped further clarify the types of linguistics and academic skills English-language learners need to acquire English literacy. His additive bilingualism model supported the maintenance of the native language as a method to attain English reading competency. While Cummins’s theory is not without its critics, most criticism questioned his philosophical underpinnings and not

the basic premise of his work, which was identifying types of linguistic tasks and cognitive difficulty needed for second-language learning. His research continues to evolve and influence policy and practice across the United States and Canada.

Chapter 1 introduced the topic and set the purpose of this study. Chapter 2 describes a review of the literature of bilingual education research. In Chapter 3 the methodology is outlined in detail. The results of the study are reported in Chapter 4, and Chapter 5 concludes with a methodological summary of the research, a discussion of gaps and recommendations for future research, and a conclusion.

Chapter 2: Review of the Literature

Introduction and Purpose

The United States was founded as a nation of immigrants. This trend continues today. As of 1999, more than 14 million students, or 17% of children ages 5–24, come from homes where English is not the primary language (Slavin & Cheung, 2005). There is a plethora of research that demonstrates that language minority students underperform their monolingual counterparts. URM students perform well below state-standardized expectations on English literacy measures, and they are more likely to drop out of school, have poor job prospects, and continue to live in poverty (NCES, 2014). Identifying the root causes for this poor achievement is challenging. It is difficult to distinguish the differences between the lack of English language proficiency and underlying learning disabilities (Dominguez de Ramirez & Shapiro, 2007).

The National Literacy Panel for Language Minority Children and Youth (August & Shanahan, 2006) reported the majority of this language-minority group is Latino. In fact, 72% of non-English speaking immigrants are of Hispanic background. It is essential that government officials and educators understand the best methods to enhance English literacy practices for this ELL population. This dissertation focuses on Spanish-speaking, English-language learners within elementary schools.

This dissertation begins with a brief introduction regarding Spanish-speaking ELL children and a history of various methods to best educate this population. This study includes a short review of bilingual education trends and the use of the Spanish native/

home language (L1) to develop English/new language (L2) proficiency. The paper continues with an examination of the empirical research regarding effective bilingual practices and programs. The literature review then examines cross-linguistics relationships and native-language development in second-language learners. This review then turns to instructional approaches and interventions for English literacy development. This chapter concludes with an overview of student assessment trends. The parameters of the review include peer reviewed journals (Academic Search Complete, Education Source, and ProQuest Educational Journals) from 2000 to 2013, using the key words English language learners, bilingual education, native language, primary education, and intervention. Six sets of articles were excluded: (a) those that did not focus on Spanish-speaking students, (b) those where students with disabilities were the primary focus, (c) those where preschool education was the primary focus, (d) those that did not focus on elementary school programs, (e) those that addressed teacher professional development, and (f) those that addressed parent education. (For a summary of the studies reviewed, see Appendix B). Frequently cited national studies or meta-analyses were reported to provide additional background research. Several seminal researchers were also included as the studies reviewed were grounded in their work.

The scientific literature is clustered into four areas: (a) development of literacy in second-language learners, (b) effective bilingual-education practices, (c) instructional approaches and interventions, and (d) student assessments. The paper concludes with a methodological summary of the research, a discussion of gaps and recommendations for future research, and a conclusion.

Background and context. Bilingual education has existed throughout U.S. history. Current bilingual education has been mandated and regulated through federal legislation and governmental policy decisions. The Bilingual Education Act (BEA) (1968), also known as Title VII, designated how federal funds were allocated to states that looked for ways to better educate language minority students learning English. This early legislation was based upon deficit thinking, that ELLs were disadvantaged because they did not speak English (San Miguel, 2004). While BEA was vague in design and lacked specific programmatic guidelines, bilingual education programs sprang into existence. Transitional bilingual education (TBE) programs were designed to use L1 as a bridge to L2 learning (Cassell Johnson, 2009). Bilingual education program expansion continued throughout the late 1970s (San Miguel, 2004).

Early seminal leaders in the field supported the use of native language to help develop English proficiency. Cummins (1979) developed his threshold model specifically to address the fact that recent immigrants were being exited from bilingual programs too early, and they were unable to meet the academic demands of the general education classroom. Cummins distinguished the differences between basic interpersonal communication skills (BICS) and cognitive academic language proficiency skills (CALPS). Students could fully develop social language abilities within one to two years upon arrival into the U.S. but it took five to seven years to fully function within academic settings. Cummins (2000) advanced a quadrant model that operationalized the BICS and CALPS concept. Cognitive demand and context cues were categorized in his model to show the length of time needed to master academic content in the school setting. There are many empirical studies by Cassell Johnson (2009), Dominguez de Ramirez & Shapiro

(2006, 2007), Lopez & Tashakkori (2004, 2006), Proctor et al. (2010) to support this theoretical underpinning. These are discussed in the literature review.

Another seminal researcher, Krashen (1982), built upon Cummins's work with his second-language acquisition theory. This theory included five elements needed for effective bilingual education programs for ELLs. These included: (a) the acquisition-learning distinction, (b) the natural-order hypothesis, (c) the monitor hypothesis, (d) the input hypothesis, and (e) the affective filter hypothesis. Each of these elements is viewed as a help or a hindrance to ELLs' second-language learning. Krashen posited that exposure to the second language, instruction received, and age when learned were factors that impacted students' language acquisition. His later empirical studies (Krashen, 2011), confirmed that the amount of actual comprehensible input a learner received increased language proficiency over time. These findings are examined in the development of literacy in the second-language learners' portion of the literature review.

The 1994 BEA reauthorization shifted the focus in the Title VII language. This change promoted transitional bilingual programs and valued bilingualism as a resource and L1 maintenance (Cassell Johnson, 2009). Research confirmed the effectiveness of two-way bilingual (TWBE) educational programs that promoted maintenance of native languages. These findings were outlined in the national comprehensive study by August and Shanahan (2006). The study, *Developing Literacy in Second-Language Learners: A Report of the National Literacy Panel on Language-Minority Children and Youth*, was commissioned by the U.S. government to identify best practices that facilitated English-language proficiency within minority-language children.

Passage of the No Child Left Behind (NCLB) legislation in 2002 changed the political landscape for bilingual education (Cassell & Johnson, 2009). Title III from the NCLB legislation replaced the BEA's Title VII Act. The focus was on phasing out developmental bilingual education programs and looking at transitional bilingual education (TBE) or English-only models as methods to accelerate second-language learners' English language proficiency. San Miguel (2004) stated that the passage of NCLB meant, "that after several decades of attacking and undermining this policy [Title VII] the opponents have finally succeeded in repealing bilingual education and in replacing it with an English-only one" (p. 93).

Some state laws further restricted bilingual program access to ELLs. For example, in Arizona, *Flores v. Arizona* (1999) and Proposition 203 (2000) changed the legislative landscape for educating minority language children. In essence, these laws mandated English-only instruction within schools (Mahoney, Haladyna, & MacSwan, 2009). All of these political decisions changed the types of programs available to children and the types of research being done in the field. Studies that showed the effectiveness of bilingual education over English immersion, the impact on instructional strategies, and students' assessments, will be reviewed in the following literature review.

Effective bilingual practices and programs. There has been a multitude of bilingual education research between 2000 and 2013. This literature review is divided by research focus that includes (a) development of literacy in second-language learners, (b) cross-linguistic relationships in second-language learners, (c) instructional approaches and interventions, and (d) student assessment.

Development of literacy in second language learners. August and Shanahan (2006) identified key areas essential for literacy development in general-educational children. These areas were: (a) oral language proficiency, (b) phonological processing, (c) working memory, (d) word level skills, and (e) text level skills. Other researchers Begeny et al., (2012) and Ehri, Dryer, Flugman, & Gross (2007), found these were essential elements for ELLs' literacy development as well. This literature review focuses on the latest studies on English-language learners. This section includes a review of effective bilingual education programs and compares how different types of bilingual education programs help or hinder English-language proficiency.

The next section reviews a series of articles that examine various literary skills and interventions to enhance ELLs' reading performance. The final section discusses studies around the assessment of English-language skill development within ELLs in this new era of NCLB.

Types of bilingual education programs. The debate around what type of bilingual program works best with ELLs depends upon philosophical beliefs and how the native language is valued within the program design (Rolstad et al., 2005a). This section investigates which type of bilingual education program yields the highest rate of English development—a question of great importance in the U.S. today (August & Shanahan, 2006).

Lopez and Tashakkori (2004) examined the effects of a two-way bilingual program on the literacy skill development of ELLs, former ELLs, and native English speakers. The study focused on how Spanish (L1) could assist with English (L2) acquisition. It also assessed L1 impact on academic learning and studied the impact of

socio-economic status (SES) factors on students' learning. Lopez and Tashakkoris' two-group, pre-test/post-test design identified 87 kindergarten and 128 first-grade Spanish-speaking students within a predominantly Spanish-speaking district in the Southern United States. Within the school, 34% were ELLs were enrolled in a two-way bilingual (TWBE) education program, and 33% were former ELLs who had been exited but participated in the extended foreign language (EFL) program to promote oral and written bi-literacy skills. Students were divided into two study groups (TWBE and EFL), with two classes in the experimental group per grade level, and two control classrooms (mainstream) per grade level. The experimental groups contained a greater percentage of students classified as English speakers of other languages (ESOL) (74% vs. 15%), and they had higher rates of free or reduced-cost lunches (57% vs. 44%). There were no significant differences between student performance levels on reading, writing, and listening ability between the two groups at the onset.

Multivariate analysis (MANOVA) with two factors (treatment group and SES) and three dependent variables (alphabetic knowledge, sight word mastery, and writing skill) indicated significant differences between the pretest scores of both groups (Wilks Lambda = .28, $F [3, 81] = 70.251, p < .01$). On the post-test scores, MANOVA revealed no significant differences between the experimental and control groups (Wilks Lambda = .79, $F [3, 81] = 7.03, p < .01$), although there was a lag in the alphabet test for the experimental groups ($F [1, 83] = 10.55, p > .017, \eta^2 = .11$). This was explained as the result of the greater number of English-proficient students in the control group ($n = 35$ vs. 12).

There were no significant differences between the experimental and control groups' performance on the seven indicators or on the SES indicators ($F [7,118] = 0.921$ and $F [7,118] = 0.725$, respectively). In other words, after one academic year, there was no statistically significant gap between the students in the experimental and control groups in English achievement. This proved that TWBE programs were just as effective as TBE in developing English proficiency.

In a follow-up study several years later, Lopez and Tashakkori (2006) compared which type of bilingual approaches produced higher levels of English proficiency within Spanish-speaking ELLs. The approaches were TWBE programs that maintain instruction in L1, and TBE programs that provide transitional instruction in L1 until L2 proficiency is reached. In their mixed-methods design, they assessed the effects on the academic performance of students and students' attitudes toward bilingualism among fifth graders who entered kindergarten or first grade with different levels of English proficiency.

Their one-year, causal-comparative study involved six schools in a large southern U.S. urban school district. Three bilingual school organization (BISO) schools were purposefully selected for the treatment groups (two-way bilingual students) and received instruction using the 60/40 model; 60% in English and 40% in Spanish, regardless of their English proficiency scores. The transitional bilingual education (TBE) schools (the comparison group) discontinued Spanish instruction after reaching an English proficiency rate of Level 3. Students were offered the opportunity to continue in Spanish Language Arts 2.5 hours per week if they desired. The study identified 553 fifth graders from the six schools. Only those enrolled since kindergarten and first grade were considered. Researchers checked for internal validity, with chi-square tests indicating no statistically

significant differences between the groups for: language proficiency, SES, student exceptionality, and retentions. The qualitative portion of the study identified students and their families (N = 32) to interview and complete a questionnaire.

Assessments included the Florida Comprehensive Assessment Test (FCAT), which measured state standards (Florida Department of Education, 2002), the Spanish reading assessment, Evaluación del Desarrollo de La Lectura (EDL) (Ruiz & Cuesta, 2000), and a language questionnaire. Results showed that students in the two-way bilingual program did not score significantly different in English than those in the transitional bilingual education program in reading comprehension, math, and science ($F(3, 537) = 1.70, p = .17$). However, the main effect on ESOL entry level in kindergarten and first grade was statistically significant (MANOVA $F(12, 1421) = 6.51, p > .001, \text{Wilks' Lambda} = .87$). This showed that English proficiency does matter at early school entrance. A univariate ANOVA was performed that showed the TWBE students actually exited ESOL services faster than the TBE students ($F(1, 356) = 5.72, p = .017, \eta^2 = .016$). This study also assessed students' performance in Spanish reading. A MONOVA with two factors (type of program and ESOL entry level), along with three dependent variables (EDL reading accuracy, comprehension, and fluency) was statistically significant ($F(3, 22) = 5.69, p > .05, \text{Wilks' Lambda} = .56$) for those enrolled in the TWBE program.

Those students enrolled in the TWBE program showed a statistically significant, positive attitude toward bilingualism (ANOVA $F(1, 325) = 25.60, p < .001, \eta^2 = .073$) in Spanish and English. These findings were confirmed in the interviews that identified the following themes: (a) bilingualism is an asset for the future, (b) bilingualism facilitates

communication between groups, (c) bilingualism maintains the cultural heritage, and (d) bilingualism would be an asset in their future.

Researchers have also investigated alternate late-exit bilingual programs that differ from the traditional TWBE model. De Jong (2006) studied the effects of one district's attempt to design a late-exit TBE model that integrated monolingual and ELLs. This study intended to mitigate the segregation aspects of TBE programs that isolated students and staff due to language dominance. It also attempted to accommodate the linguistic needs of recent arrivals with those ELLs in the country for several years.

The study took place in a mid-sized city in the northeastern part of the United States with Spanish and Portuguese-speaking students identified as the ELLs. Third to sixth graders in bilingual and general education classes (N = 35) were paired together. Teachers planned together through a series of workshops. Students were cross-grouped for content-area English instruction over the course of one to two years. Teacher exit interviews were coded and the following themes were identified: (a) integration showed a positive outcome for social interaction among the teachers and students, (b) second language gained status, (c) teacher collaboration increased, and (d) some teachers expressed concerns about their ELL students' ability to participate in the English content-area discussions due to a lack of confidence in their language skills. This study validated the need to integrate ELLs with monolingual models. Short of designing a TWBE, this model proved effective.

The debate about effectiveness of various types of bilingual education programs continued with MacSwan and Pray (2005). The length of time students should enroll in any type of bilingual education (BE) program has been addressed legislatively in several

states. For example, Arizona, California, and Massachusetts passed anti-bilingual laws that require children to be taught using English-only methods. One such model promoted is structured English immersion (SEI). MacSwan and Pray investigated the length of time it took children in BE programs to reach English proficiency. They also investigated if younger learners acquired English faster than those late-arriving immigrants. They studied six urban elementary schools within central Arizona. The schools were chosen that had well-designed bilingual programs and that used the Bilingual Syntax Measure (BSM) to assess language proficiency within the ELL population. The study involved 89 Spanish-speaking ELLs. Selection criteria included at least two BSM assessments in their files, with their first score being a 1 and the second at least a 5. Students were excluded who did not have repeated test measures or were classified with special-education services. Data revealed that it took students 3.31 years to earn a 5 or 6 on the BSM (standard deviation (SD) 1.31 years). A large percentage of students, 68.5%, achieved English proficiency within four years, and 92.13% achieved English proficiency by the fifth year. The great variance observed is consistent with Cummins's 1979 and 2000 findings, which was that students vary greatly in their length of time needed to acquire English. A one-way ANOVA was conducted to evaluate the relationship of age of arrival in the U.S. on learning rate, and a significant difference was found $F(4, 84) = 9.037, p < .001$, adjusted $R^2 = .268$). These results demonstrated that the younger the children, the longer they took to achieve English proficiency. These findings conflicted with the current political trend that allowed only one year to transition to fully mainstream classrooms.

Cross-linguistic relationships in second-language learners. Researchers continue to debate how native language should be used to enhance ELLs' academic reading performance in English (August & Shanahan, 2006; August et al., 2006). This section will review several studies that addressed how heritage language (HL) impacted academic performance and language proficiency in both Spanish and English.

Tse (2001) examined the factors that influenced bi-literate and bilingual adults to maintain their HL in the face of a language shift. Tse reported this language retention was due to strong societal factors that pushed students toward English proficiency while young. In her qualitative study, Tse conducted interviews to identify the trends that allowed her 10 participants to resist heritage language loss. Participants were heritage language speakers, fluent in English, and exposed to non-English in their homes and communities. Participants were able to read in their HL, were born in the U.S., or arrived before the age of six, and they had not lived in their HL country for more than two weeks. While the participants were between 18 and 24, findings were included in this literature review because participants referenced important elementary school experiences. "Snowball sampling" was used to identify the participants.

Tse's participants completed a brief profile, a screening survey, a self-report language-ability data sheet, and participated in two separate two-hour interviews. In addition, students read in their HL and summarized the content in English. This "immediate recall protocol" (Berhardt, 1983) was used to ensure bi-literacy. Interview transcripts were analyzed using qualitative coding procedures (Straus & Corbin, 1990). The following themes emerged about language vitality and literacy environment. Of special note was the need for a HL peer group with which to practice for continued

exposure to their HL. Institutional support was also a factor. Participants reported that when schools valued their HL, they valued proficiency in this language. They also reported that their opinion of their HL changed based upon their earlier experiences. For example, one theme that emerged in Tse's findings was those participants who did not receive bilingual education programs in elementary school did not value their HL (Spanish) until reaching high school. Of final note, when participants viewed their HL with high value, they were more receptive to learning and developing language skills. This study validated Krashen's (1982) monitor model theory, which supported language status as a factor impeding or enhancing native-language learning.

Another study, Proctor et al. (2010) looked at how bilingualism promoted cognitive growth and general literacy achievement. They posited that fully developed English and Spanish literacy skills would benefit ELLs with better economic opportunities in the U.S. job market. Proctor et al. countered the arguments of HL loss or shift (transitioning to English only) emphasized by Tse (2001). They concluded that: (a) robust native language facilitates English literacy development, (b) bilingualism promotes language and cognition through strong metalinguistic awareness, and (c) bilingualism can improve the SES of a language group as well. SES was linked as a predictor of academic failure, and Spanish language learning was not considered a contributing factor to continued familial poverty.

Proctor et al. (2010) also explored the treatment of language for instruction. They studied the impact of language use on Spanish and English reading comprehension. The researchers analyzed the relationship between the two languages as functions of language instruction. The study then considered the socioeconomic factors of children's home lives

and the impact on Spanish reading achievement. Three sites across the U.S. were studied with 101 students selected. Students were enrolled in English-only ($N = 45$), Spanish-only ($N = 22$), and TBE programs ($N = 34$) (students transferred out of Spanish in second through fourth grades). Student performance data points were collected five times for Spanish and English reading during the study. The parents of students in the fifth grade completed a questionnaire on SES status and home language use.

Spanish and English reading comprehension were measured using the Woodcock Language Proficiency Battery (Woodcock, 1991; Woodcock & Muñoz-Sandoval, 1995). Spanish oral vocabulary was assessed using the Vocabulario Sobre Dibujos subtest of the Woodcock-Muñoz Language Proficiency Battery-Revised (Woodcock & Muñoz-Sandoval, 1995). The parent questionnaire and demographics surveys were completed for all fifth-grade parents in their language of preference. Demographic data revealed that students in the BE classes had mothers with lower education rates, with less than a ninth-grade education (31% vs. 9.6% in Spanish-only instruction). Mothers in the English-only classes had the highest rates of education (25% compared with 12.6% in BE, and 9.6% in Spanish-only instruction). Additionally, BE and Spanish instruction had the lowest rates of SES (50–75% earned $< \$20,000$). Overall, Chi-square comparisons of instructional groups showed that students in the Spanish group, $\chi^2(1, N = 101) = 62.2, p < .01$ and bilingual, $\chi^2(1, N = 101) = 36.9, p < .01$, significantly outperformed the English-only in Spanish reading $\chi^2(1, N = 101) = 34.1, p < .01$. The study further suggested that Spanish oral language skills and English reading comprehension significantly predicted students' performance on Spanish reading comprehension. Their model further interrelated Spanish and English literacy skills development. This study confirmed Cummins's (1979)

foundational theory that maintained first and second language development should be intertwined (August et al., 2006).

Instructional approaches and interventions. Research shows that BE programs are more effective in developing literacy skills in English. However, programs vary on when the transition from L1 to L2 reading skill development is best achieved. Most TWBE or TBE programs use native language as the dominant language of instruction in the early grades (Slavin & Cheung, 2005). Interventions are needed when students lag behind in their L1 development. This section presents research on effective classroom and intervention strategies for ELLs' literacy development. This section focuses on English, as well as Spanish, literacy skills.

August and Shanahan (2006) reported the large set of research studies investigating effective interventions with young, monolingual children who exhibited reading difficulties. In the last few years, attention has turned to lower SES, language-minority English-language learners. Several studies were analyzed in this portion of the literature review.

Phonological awareness (PA) is a key early reading skill (August & Shannon, 2006). PA is defined as “an understanding that words are composed of units such as syllables, onsets, rimes, and phonemes . . . and the ability of a learner to manipulate phonemes in words” (Giambo & McKinney, 2004, p. 97). Giambo and McKinney determined how PA impacted ELLs' oral reading proficiency in English at higher rates than the story-reading condition. They found that change in English proficiency, over time, was related to change in PA.

Giambo and McKinney (2004) selected 80 Hispanic ELLs and randomly assigned them to the phonological experimental group (N = 40) or story reading control group (N = 40). They were then matched based upon oral reading proficiency and gender. Students' growth was measured using the pre- and posttests of oral English proficiency and receptive English vocabulary. Both groups received 19 weeks of small group instruction in 20-30 minute sessions, four times a week. The experimental groups received a systematic PA program in addition to the story-reading program, which was considered part of the regular kindergarten program. Although both groups grew, there were significant differences in scores from pre- to posttest for receptive vocabulary measures ($t(39) = 5.76, p = .00$, and $t(39) = 5.83, p < .01$, respectively). An analysis of covariance with the oral English proficiency posttest scores (dependent variable) and pretest scores (covariate) showed significant group differences with greater growth for the PA group ($F(1,77) = 7.08, p < .01$). Giambo and McKinney also calculated that 12% of the increased oral English proficiency could be attributed to increased phonological awareness improvement. This study affirmed that PA should not be ignored. ELLs could enhance their learning significantly if educators allocated time each day for PA skills. While story reading and phonological awareness were compared in the previous study, Uchikoshi (2005) investigated the impact of educational programming on children's oral narrative skills. ELLs (N = 108) enrolled in six public schools from a large, east coast public school district participated. Students were randomly grouped to watch one of two PBS television programs three times a week for 30 minutes per session during the school day. Students' narrative skill development was assessed. Those viewing *Author* had steeper trajectories on the combined narrative measures than the children that watched the

Between the Lions program. This study affirmed that developing listening skills through narratives enhanced children's retelling skills. Careful consideration must be used when selecting the programs due to the in-school time commitment. While one of the experimental groups grew, other studies appeared to make higher impact on ELLs' linguistic development. Due to time constraints, educators must carefully consider selection criteria when planning effective interventions during the school day.

While Giambo and McKinney (2004) and Uchikoshi (2005) examined one unique skill focus for ELLs' language development, others investigated programs that incorporated several literacy elements. The following studies were important because they combined multiple elements of research-based best practices. One study (Ehri et al., 2007) found that the Reading Rescue (RES) tutoring program increased ELLs' literacy development. Sixty-four (64) lower SES, language-minority first graders with reading difficulties, received one-on-one tutoring using the Reading Rescue model. Program interventions for key literacy areas included (a) phonological awareness, (b) systematic phonics, (c) vocabulary, (d) fluency, and (e) reading comprehension.

The study compared struggling students in the RES tutoring against a small-group intervention program, *Voyager Passport* (Voyager Expanded Learning, 2004), and those in the control group who received no interventions. Students came from five low-SES urban schools in the same metropolitan city. Three schools already used RES, and three did not. Selection criteria included identification of the lowest performing students on the RES Classwide Screening Assessment (from N = 497 to N = 203 to N = 190). Students were rank ordered, and scores were used to form matched pairs. Students were then assigned to one of the three groups. There were 64 students in the RES group, 62 in the

control school offering RES (C1), and 60 in the second control group (C2) in the non-RES schools. The small group study had 52 participants. The benefit of the program was that 59 adults with various backgrounds and certifications provided the tutoring. The Gates-MacGinitie Reading Test (GMRT) 4, Level Beginning Reading (BR) (MacGinitie, MacGinitie, Maria, & Dreyer, 2000; MacGinitie et al., 2002), the Iowa Tests of Basic Skills (ITBS) (Hoover et al., 2001, 2003) vocabulary tests, and the RES Class wide screening assessments were given as pre- and posttest measures. Tutored students made significant gains in reading words and comprehending text over either of the control groups who received small group instruction ($d = 0.70$) or no intervention at all ($d = 0.74$). This study affirmed the use of proven literacy practices for English-only children with language-minority students.

Fluency is one key element identified for improved reading comprehension, and it is defined as the ability to read with speed, accuracy, and proper intonation and expression (Begeny et al., 2012). Begeny et al. found that their HELPS reading fluency program, which was designed for monolingual students, benefited Spanish-speaking English-language learners as well. The purpose of this control group comparison study was to evaluate HELPS with the Latino population.

HELPS was designed to integrate the eight evidenced-based fluency measures into one, explicit teaching-manualized program. Begeny et al. (2012) recognized reading fluency as a key factor for reading comprehension. Strategies included (a) fluency practice, (b) modeling, (c) repeated reading, (d) phase-drill error correction, and (e) reward/motivation. A small number ($N = 21$) of second-grade Spanish-speaking ELLs were selected from a rural, public school in the southeastern part of the United States;

76.2% were boys and 95.2% were Latino. Thirteen second graders from this group were randomly selected to receive HELPS, in addition to 90 minutes of core reading instruction for 20 to 30-minute sessions, two to three times a week for five months. The non-parametric Mann-Whiney U-Test was used as a control for the small sample size as well as Glass's (1976) Δ for effect size. The Gray Oral Reading Test (GORT), Fourth Edition (Weiderholt & Bryant, 2001) was used to assess fluency and comprehension (GORT-Fluency and GORT-Comprehension). No difference was found between the groups at pretest (GORT-Fluency, $U = 45.5$, $p = .65$; GORT-Comprehension $U = 38.0$, $p = .34$). However, the HELPS group showed statistically significant growth on the posttests for fluency (GORT-Fluency, $U = 12.5$, $p < .01$) and comprehension (GORT-Comprehension, $U = 18.0$, $p = .01$). While this is a very small sample, the results are promising and in need of further empirical studies.

Other studies validated this connection between fluency and reading comprehension. Therrien (2004) found that repeated reading was an essential evidence-based strategy that promoted oral language fluency and reading comprehension. In his meta-analysis, Therrien identified five essential elements of repeated reading that enhanced students' reading success. They were: (a) teaching repeated reading increased students' fluency and comprehension, (b) highest success rates occurred when administered by adults, (c) teacher model was essential, (d) passages read three to four times proved optimal amount for growth, and (5) it was essential to provide corrective feedback and cues as needed.

The previously mentioned studies addressed English proficiency levels for ELLs. In their initial study, Dominguez de Ramirez and Shapiro (2006) attempted to examine

oral reading fluency growth rates among Spanish-speaking ELLs in both English and Spanish. They wanted to assess the differences between reading rates in English-for-English, general education students and ELLs in bilingual education classrooms. This study also compared the growth rates of English-only students in English against Spanish-speaking ELLs' Spanish reading rates. Finally, they compared the growth across the two groups. Dominguez de Ramirez and Shapiro selected 165 first-time fifth graders in TBE (N = 62) and general education classrooms (N = 83) from the southwest United States. Of those chosen, 62% received free or reduced cost lunches, and most were of Mexican-American descent. Students were assessed using the Texas Assessment Academic Skills (TAAS), the Developmental Reading Assessment (DRA; Beaver, 1997), and the Curriculum Based Measure-Revised (CBM-R) (Shinn & Bamonto, 1998). A stratified sample was used, and a random sample was selected for each subgroup. Students were assessed three times over the year. Overall achievement showed that all students showed significant growth in English oral reading fluency [$F(2, 238) = 236.01, p < .001, \eta^2 = 0.665$], with English-only students reading more fluently than Spanish-speaking children [$F(1, 119) = 42.81, p < .001, \eta^2 = 0.265$]. The authors suggested that CBM "can be a viable methodology for evaluating the rate of progress of Spanish-speaking ELLs in bilingual education programs" (Dominguez de Ramirez & Shapiro, 2006, p. 356).

In their follow-up report, Dominguez de Ramirez & Shapiro (2007) found the correlations between English and Spanish oral reading rates were statistically significant ($p < .001$) and moderately high (.79, .73, and .71 for fall, winter, and spring). This showed that Spanish reading fluency did transfer to English reading. Additionally,

Spanish reading performance in the fall could predict spring reading fluency in English. Using a simple regression model, the fall probes on the AIMSweb accounted for 68.6% of the variation for English-oral reading probes administered at the end of the year, $F(1, 56) = 122.12, < .01$. These results confirm Cummins's (1979) original theory that L1 development is a good predictor of L2 achievement.

While reading fluency is an important factor in reading performance, other researchers have taken a more holistic approach. Denton et al., (2004) looked for additional intervention programs that would help close the achievement gap between ELLs and monolingual students in English reading proficiency. They posited that explicit instructional programs that included decoding, vocabulary, and comprehension instruction would enhance ELLs' reading proficiency. Denton et al. (2004) applied two proven, effective intervention programs for monolingual children to 93 ELL Spanish-speaking elementary students in TBE programs. This random assignment of one member of a matched-pair experimental design divided students into two groups. One experimental group was assigned to the *Read Well* or *Read Naturally* programs with a matched-pair control group of similar performance data (as measured by the WRMT-R (Woodcock, 1987). Oral language and Spanish reading proficiency were measured by the LAS-O (De Avila & Duncan, 1990).

Students in the *Read Well* program received explicit, scripted instruction three times a week for 30 minutes sessions. The interaction between the time and the group were the only areas of statistically significant growth for the experimental group ($F(1, 31) = 5.70, p = .023$). Students who received this systematic phonics instruction made significant progress over the control group (SD +4.06) Students in the *Read Naturally*

program failed to show any statistically significant growth. Denton et al. (2004) actually affirmed that phonics instruction, one of the crucial elements for literacy development, was applicable for ELLs as well as monolingual children.

Vocabulary development was identified as another crucial literacy skill. Once again, researchers applied proven monolingual strategies to English-language learners. Deffes Silverman (2007) investigated the effectiveness of vocabulary development for English-Language and English-Only (EO) learners in kindergarten. She posited that vocabulary development was essential to build strong foundational skills for ELLs. Deffes Silverman's study combined the Multidimensional Vocabulary Program (MVP) with best practices for ELLs. She studied the rate of word learning and overall vocabulary knowledge for both ELL and EO students. Five kindergarten classrooms from a northeastern urban public school district volunteered to join. Three schools, with 72 kindergarteners, participated in the 14-week study. The sample was divided into three groups: three EO classrooms ($N = 44$), one SEI, and one TWB classroom (combined $N = 28$). The study confirmed the importance of vocabulary instruction using ELL strategies. ELLs started with lower overall vocabulary knowledge but grew at faster rates than EO students. Actually, SES was not a predictor of the children's initial level ($\beta = -2.18, p = .3572$) or rate of vocabulary growth over the course of the year ($\beta = -0.0082, p = .9148$).

Researchers have conducted studies on the effectiveness of discrete skills used to enhance reading comprehension. Other studies cited have confirmed the effectiveness of programs with multiple measures that improve ELLs' English-language skills. A third body of literature examined students' needs to identify reading interventions for English language learners. Malloy, Gilbertson, and Maxfield (2007) addressed the use of brief

experimental analysis (BEA) to identify targeted interventions for ELLs. They examined adding five reading treatments, one at a time, to find the best treatments to improve ELLs' English reading performance. BEA is an assessment approach for selecting the most effective intervention against students' academic performance. Malloy et al. (2007) used BEA to improve ELLs' reading-English fluency. Five Hispanic, ELLs were selected from a rural, western state within the United States. Students participated in brief intervention sessions twice a day four times a week. A variety of interventions were tried and measured to see the impact on reading fluency, as measured by the oral reading fluency (ORF) norms. All five children showed growth from the baseline data collection. Yet, the intervention that showed the greatest growth varied by student. This was clear evidence that interventions must match individual student's needs for maximum growth.

Student assessment. NCLB legislation has changed the landscape for student accountability in our nation's schools. The impact on schools with larger minority and ELLs is tremendous. Recent state laws compounded these problems. This section analyzes several studies on the best methods to assess language-minority students' academic achievement, language development, and it reviews overall testing trends.

The National Assessment of Educational Progress (NAEP) is a national reading and math assessment that measures students' academic levels. Testing mandates now include accountability for ELLs within these measures. Mahoney (2008) investigated the differential item functioning (DIF) of the NAEP exam in math. The goal was to study performance differences in math and internal functioning between language minority and language majority students. In her construct validity study, she asked whether the NAEP assessment measured ELLs' mathematical achievement or some irrelevant construct.

ELLs' performance was compared across content and test items that were coded for linguistic complexity. Students who took the 1996 NAEP test (N = 123,802) were divided into three groups. Results did not find any linguistic factors that differentiated students' math scores. In other words, there were no statistically significant differences, and the hypothesis was not rejected. Mahoney suggested that further studies were needed to identify how language factors affect students' performance on high stakes testing measures. While the NAEP is a national assessment, education policy continues to evolve with ELLs being assessed earlier on state-standardized tests. Research is now evolving to understand the impact upon language minority students.

One study (Mahoney et al., 2009) proved empirically that multiple measures are better predictors of ELLs' English proficiency than single measures currently used in Arizona. Arizona now mandates English-only instruction for all ELLs using the SEI model. Students are able to stay in the SEI classrooms until tested out, or until they are reclassified to mainstream classrooms. Under Proposition 203, Arizona must assess students using the Stanford English Language Proficiency test (SELP). Mahoney et al. evaluated how effective the SELP was in predicting ELLs' academic success. Their three separate one-way analyses of variance (ANOVAs) on SELP levels three through five used students' Arizona's Instrument to Measure Standards (AIMS) achievement scores. The researchers formed comparison groups and counted reclassified students using SELPS versus the 2004 multiple measures prior to the state mandates. In essence, 416 more students were reclassified across the district using the SELPS criteria. This was a statistically significant difference that resulted in more children exited from SEI programs before they were ready. In all three cases, students reclassified with old

multiple measures performed better than those reclassified in 2005. They reported that 28% of third to fifth graders did not meet state assessment criteria in reading, 29% in math, and 29% in writing. This gap was higher for those students in grades 6 through 8, with 45% of ELLs not meeting overall state standards. In addition, a greater number (N = 4142) of students were reclassified under the new mandates. The authors affirmed educators' fears that as classification numbers rose, students' performance decreased.

This mandated-testing phenomenon continues at the district and local level. At times, researchers were looking for the best measures to check students' classroom level growth. Laija-Rodriguez, Ochoa, and Parker (2006) used Cummins's model of CALPS, in combination with reading growth measures, to see the impact of L1 on L2 development and achievement. Laija-Rodriguez et al. cited the Office of Civil Rights (OCR) (2001) as recommending school districts to evaluate ELLs' language proficiency levels to achieve educational access.

A cross-linguistic study was designed to measure the combined effect of language proficiency, as measured by the Woodcock-Muñoz Language Survey (WMLS) (Woodcock & Muñoz-Sandoval, 1993) and reading growth, as measured by the Curriculum Based Measurement (CBM) Oral Reading Probes (ORF). The WMLS was chosen because it uses Cummins's BICS and CALPS classifications. The study examined the interrelationship between performance on both English and Spanish proficiency levels combined with the English and Spanish performance tests. Students (N = 77) in the second and third grades from the southwestern part of the United States were selected. English-language learners with LAS scores 1–3 participated. This multi-regression analysis found statistically significant ($p < .05$) language proficiencies between Spanish

and English but weak relationships ($R^2 = .09$) between reading growth on the CMB-ORF in both Spanish and English. This study affirmed Cummins theory as “the best predictor of L2 growth was primary language development” (Laija et al., 2006, p.103).

Methodology and methods. This literature review included 20 empirical studies; five studies have been published specifically to discuss types of bilingual program effectiveness. Six articles were included to focus on discreet skills development in relationship to ELLs’ English performance. Two studied the specific program impact of Spanish and/or English academic performance and proficiency rates. Two others were included to study which intervention produced the largest reading literacy growth in ELLs. Three more were incorporated to address assessment issues in relationship to new federal and state mandates for ELLs’ English skill development.

The majority of the studies, 80%, were quantitative; one was a mixed-methods, and the remainder were qualitative (15%). While there is a wealth of studies that debated bilingual education programs versus English-only methods, most were completed prior to the search restrictions of this literature review. Therefore, only 40% of the studies found addressed the use of TWBE, TBE, and SEI parameters. However, this cross-linguistic analysis of how L1 can aid in L2 proficiency and academic achievement was found in 15% of the studies. Additionally, 45% of current research focused on specific interventions or programs to enhance English-language proficiency among ELLs. Three studies addressed reading fluency as a predictor of reading comprehension. Most targeted English-language skill development. There were clear trends in the use of standardized, mandated assessment tools for ELLs that measured English performance and linguistic

competencies. The literature was clear that these measures were hindering students' actual intellectual growth.

The studies examined in this literature review utilized a broad range of measures and techniques. Both qualitative and quantitative methods have been used. Some key measures used in multiple studies were (a) the Curriculum-Based Measurement-Revised, (b) the Bilingual Syntax Measure, (c) the Woodcock-Muñoz Language Survey and (d) Woodcock Language Proficiency Battery.

The CBM-R measured both ORF and reading comprehension, using the multiple-choice cloze (MAZE) test. This assessment is available in both Spanish and English. The BSM assesses language proficiency levels independent of academic performance. The WRMT-R, WMLS, and WLPB measures total reading inventory, assessing L1 competency and L2 competency, respectfully.

Research gaps and recommendations. There is a plethora of research focused on how to develop second-language proficiency and academic achievement. Studies that used home language to enhance and improve students' acquisition of English did not address native language maintenance or growth models. Proctor et al. (2010) considered research in this area crucial to stop Spanish loss in previously Spanish-dominant students. Future studies in this area could result in greater economic growth and independence in ELLs as they move into the workforce.

The theme of equity in language use is echoed by Cassell Johnson (2009) and Mahoney et al. (2009). Cassell Johnson advocate that educators fight current Title III mandates in NCLB by showing the negative impact on ELLs. This is certainly an area recommended for further study.

Another weakness noted in many studies (Denton et al., 2004; Lopez & Tashakkori, 2004; 2006) was small sample size and length of the intervention. Lopez and Tashakkori (2007) addressed the need for long-term longitudinal studies with larger populations to affirm the effect of TWBE on Spanish proficiency without harming English growth. Denton et al. recommended more powerful methods to study the effect of the two interventions, *Read Well* and *Read Naturally*.

One key recommendation for further study addressed the need to provide interventions that use multiple measures of reading performance and are offered in Spanish as the native language. Begeny et al. (2012) proposed replicating his HELPS study in Spanish to enhance Spanish literacy development. This replication study could also assess how L1 development could help with L2 proficiency. This is of particular interest to this researcher.

Dominguez de Ramirez & Shapiro (2007) attempted to fill a gap they identified in the literature. Their study attempted “to understand the relationship between Spanish and English reading fluency and the possible mutual influences among first and second languages of Spanish-speaking ELLS” (p. 804). They recommended further studies to examine TWBE program effects and look for new ways to identify instructional approaches for the intervention and acceleration of ELLs’ overall academic reading growth.

Chapter Summary

This paper examined the current reality of English-language learners and best practices to help close the existing achievement gap between ELLs and their monolingual counterparts. The literature review included 20 articles related to language minority,

Spanish-speaking children in elementary schools today. A closer look at effective program design was reviewed. Studies proved overwhelmingly that the least effective programs promoting language-minority students' language skills and academic growth are SEI or English-only programs. The use of native language to develop second language skills was found to result in higher L2 performance as well.

The impact of NCLB and Title III federal legislation was discussed as negatively impacting language-minority children. Overall, this literature review showed that ELLs develop English proficiency and higher academic growth when educators capitalize on students' entire language abilities. This means using both Spanish and English strengths to support literacy in both languages. Mainstream researchers are now looking to identify ways to close the achievement gap between monolingual and ELL children. The literature reviewed found that ELLs responded to research-based best practices for reading skill development. Most notable are the preliminary results of fluency and comprehension interventions that have emerged for ELLs' English literacy development. However, there is still a gap in the literature in this area that warrants further study. Research must continue to address factors that can help ELLs perform better and close the achievement gap. Until this gap is closed ELLs will continue to lag behind their monolingual counterparts; thus, resulting in lower academic and economic opportunities. With more than 14 million children in the education pipeline, it is crucial to resolve this issue for the sake of the nation and its' people.

Chapter 3: Research Design Methodology

General Perspective

The purpose of this quantitative, pre/post-test, quasi-experimental, matched-pair study was to assess the efficacy of using one effective early-literacy development strategy for primary, Spanish-speaking English-language learners in dual-language classrooms. Using the HELPS reading fluency program (Begeny, 2009) as the reading intervention tool, students' reading fluency growth was measured using the AIMSweb R-CBM (Pearson, 2013) screening tool in both Spanish and English. This chapter outlines the problem statement, research questions, reviews the research context, and the participant-selection process. The chapter also discusses the instruments used in data collection and the data collection process. The procedures, study design, and variables are outlined. The analysis procedures and summary conclude the chapter.

Problem statement. It is essential to identify what best reading-intervention practices, previously applied to monolingual English-only children, can enhance Spanish literacy in bilingual children. There is a vast amount of research on English language development for ELLs (August & Shanahan, 2006). There are also multiple studies supporting effective reading strategies for monolingual English-speaking children (August et al., 2006). Other researchers (Therrien, 2004) identified fluency as a key factor in developing English reading comprehension. Effective classroom core instruction and explicit interventions in early grades can prevent reading problems in monolingual English-speaking children (Denton et al., 2004). However, Denton et al. stated that there

is little research utilizing these English-reading strategies for developing Spanish reading skills in primary grade, Spanish-speaking children within bilingual classrooms. Denton et al. identified essential elements needed for ELLs to learn English. These strategies included: (a) an emphasis on decoding instruction that included phonological awareness in English with comparisons to native-language differences, (b) in-depth English vocabulary development that was concentrated and repetitive and used visuals and built networks of words that incorporated Spanish-language background knowledge, and (c) explicit cognitive and metacognitive strategies that demonstrated improved English comprehension for English-language learners. Begeny et al. (2012) recognized this gap in the literature and designed a program based upon these identified best practices for ELLs. Begeny (2009) modified his English literacy program for ELLs and applied the HELPS intervention program to aid in Spanish reading fluency to support reading comprehension.

Research questions. The research questions that guided the study were:

- Do first and second grade supplemental early literacy interventions, delivered in Spanish, increase the rate of fluency, as measured by the AIMSweb (R-CBM-Spn) screening reading assessment, for English-language learners in dual-language programs?
- Do third-grade supplemental, early-literacy interventions, delivered in Spanish, increase the rate of fluency, as measured by the English AIMSweb (R-CBM) screening reading assessment, for English-language learners in dual-language programs?

Hypotheses. The following hypotheses guided this study:

- The null hypothesis was that the HELPS program would have no impact on increasing reading fluency rates on the students in the treatment group.
- The alternate hypothesis was that the HELPS program would have a statistically significant impact on increasing the reading fluency rates of the students in the treatment group.

The research setting and district demographics are outlined in the following section.

Research Context

This study took place in a large, urban district within the northeastern part of the United States. For purposes of confidentiality, the two schools used for this research are referred to as Flower City School (experimental) and Flour City School (control). Flower City School is a K-6 school with an enrollment of 750 students. The school contains a dual-language program with 300 students; 125 are identified as English-language learners. Approximately 140 students qualify for English as a Second Language (ESL) service, with 92% of the students having a Hispanic/Latino heritage. The other 8% of the students come from seven other language groups and ethnicities in the general-education classroom and receive ESL services only. The overall school figure for the free and reduced price lunch is 83%, with 100% of the ELLs qualifying for the free and reduced priced meals program. The school has an annual attendance rate of 94%.

Flour City School has 1,200 students enrolled in this Pre-K-6 school; 98% are eligible for the free and reduced price breakfast and lunch programs. There are 160 students in the dual-language program with Hispanic/Latino heritage. All students in the dual-language program qualify for the free and reduced price meal program, and 95%

receive ESL services. The attendance rate is 93% annually. (See Table 3.1 for a demographic comparison of the two schools).

Table 3.1

Demographic Comparison between Selected School Sites

Dual-Language (DL) Schools	Flower City*	Flour City
Size	750	1,200
Grade Configuration	K–6	Pre-K–6
DL Enrollment	300	320
ELLs in DL	125	160
Total Number of ELLs	140	182
% of Latinos	92%	93%
% of Free/Reduced Lunch:		
Total School	83%	98%
ELLs	100%	100%
Attendance Rate (2012–2013)	94%	93%

*Treatment School

These two schools were chosen because they are the most closely matched in performance and dual-language success rates. Both schools have strong leadership and knowledgeable teachers within their DL programs. The students are equally matched in terms of demographics, poverty rates, ethnicity, and language of origin. This study stayed within the district boundaries because there are no other bilingual programs in the surrounding school districts. Other schools within the district were not selected because

the only other DL school is in its infancy, and it is not yet fully established. All other bilingual programs are transitional in design and were not considered for this study.

Both schools are identified by the New York State Education Department as *Focus Schools*, as they did not meet the Adequate Yearly Progress (AYP) for the past two years for various subgroups. This is based upon the NYS ELA and Math assessments administered in grades 3-6 annually. The district adopted the Common Core State Standards (CCSS) and NYS curricular modules provided by the NYS Education Department in 2012–2013. During the 2013–2014 school year, the district required all schools to implement state-provided materials for literacy skill development (K–2) and math (K–8). Additionally, the state mandated that all schools fully implement the NYS Bilingual Common Core Progressions. These progressions outline the use of New Language (English for ELLs) and Home Language (Spanish for Spanish speakers) CCSS within bilingual education programs. Additionally, the district adopted the Estrellitas (Myer, 2012) Spanish reading program for all K–1 students in bilingual programs as the core Spanish reading instructional program. The CCSS state materials were only provided in English. District officials and classroom teachers developed Spanish correlated materials as the year progressed.

Research Participants

Student participants. The participants for this study were Spanish-speaking ELLs in the first through the third grade within the two identified schools. All students were instructed in Spanish for Home Language literacy skill development. Those in the first grade received only Spanish language arts instruction. Those in the second grade were taught formal English reading instruction for the first time, while those in the third

grade received both languages for reading. All students in both schools were administered the English screening tool, AIMSweb (R-CBM) to establish baseline fluency rates. Students were identified (N = 27) at the experimental Flower City School using the fluency eligibility criteria (word counts per minute) outlined in the HELPS program described in the next section (see Appendix C for criteria). These students were matched with similar students at the control school, Flour City School. All matches were first made based upon rate of fluency. Gender was used as a second match in all grade levels. This resulted in 100% of the first grade students matched by performance and gender, 67% in the second grade, and 69% in the third grade matched pairs. It must be noted that 29 students received the HELPS intervention program at Flower City School. Two third graders were not included in the results (one female and one male) because there were no matches available at the control school.

All selected students were Hispanic/Latino and 100% met the federal poverty indicators for the free and reduced meals status. Of the identified students in the experimental group, there were more girls (N = 14) than boys (N = 13). The control group included 16 girls and 11 boys. All students were enrolled in dual-language classrooms where literacy is conducted in the Home Language (Spanish). Those in the second and third grades also received English reading instruction in both schools, which is identified as “New Language Standards” by NYSED. Table 3.2 details the summary of participant information.

Table 3.2

Student Participant, Matched-Pairs Summary

Grade Levels	Flower City School (Experimental)		Flour City School (Control)		Total Participants
	M	F	M	F	
Grade 1	3	2	3	2	5
Grade 2	4	5	4	5	9
Grade 3	4*	9*	4	9	13
Total					27

*A student was unable to be matched.

Adult implementers. All HELPS instructional settings were implemented in one-on-one (adult and student) sessions in a pull-out format. Building support staff, intervention specialists, paraprofessionals, teachers, and community volunteers were trained in using the “manualized” HELPS program. HELPS program developer, John Begeny, Assistant Professor in the School Psychology Program at North Carolina State University, provided a full-day training session for all adults. This lead researcher provided a methodology for key building and district staff to check for implementation fidelity. An accuracy rate of 90% was set to ensure the same training protocol use throughout the treatment period. Two fully trained observers completed the Observation Summary Form (OSF) for the HELPS One-on-One Program as they observed each tutor (see Appendix D).

All adults reached the passing threshold in their first round of observations; no additional measures were needed. Tutor One implemented 100% of the primary protocols, with 94.5 % of tips/reminders. She had an enthusiasm rate and organization of 5, the outstanding ranking. Tutor Two implemented 91% of the primary protocols, with 95% of the tips/reminders recommended in the program, scoring a 4 for enthusiasm with students and a 5 for organization. Tutor Three had full fidelity to the implementation model with 100% on the primary protocol, 82% use of the teacher tips/reminders, and received a 5 in both rate of enthusiasm with students and organization. Although the minor errors are below the threshold (85%), the major elements were evident at 100%, thus, requiring no further observations. Table 3.3 indicates the summary of the implementation fidelity results.

Table 3.3

Tutor Implementation Fidelity-Summary Results

Tutor	Primary Protocols Major Errors (%)	Tips/Reminders Minor Errors (%)	Enthusiasm Rate (1–5 Scale 1-Poor, 5-Outstanding)	Organization Rate (1–5 Scale 1-Poor, 5-Outstanding)
One	100	94.5	5	5
Two	91	95.0	4	5
Three	100	85.0	5	5

Study Design and Variables

This quasi-experimental, matched-pair group design evaluated the effectiveness of the HELPS intervention program on students' reading fluency. The dependent variable is the rate of growth and improvement in fluency for students in the treatment and control groups. This was measured by the word count per minute (WCPM) improvement on the AIMSweb R-CBM universal screening assessment measure as well as the rate of improvement (ROI) calculated. The assessment was administered in both Spanish and English at Flower City. The language of assessment varied in each grade at Flour City, with grade 1 in Spanish, grade 2 in both Spanish and English, and grade 3 in English only. The independent variable was the actual HELPS intervention program. The intervention was delivered in Spanish.

Students were selected for the HELPS program by identifying their WCPM from the AIMSweb baseline assessment. Each selected participant was then matched by performance score with a child in the control school. The primary match criteria were based upon reading scores. In order to control for gender differences, the secondary match criteria was students' gender whenever possible.

The HELPS program consisted of a series of best practices for developing reading fluency and comprehension. Trained tutors work one-on-one with students, two to three times a week for 10 to 15 minutes a session, which included administering the following steps: (1) an introduction to a reading passage that includes verbal cuing, (2) a timed reading passage that includes repeated rereading, (3) a retell check procedure, (4) a phase-drill error correction procedure, and (5) a teacher reads aloud as a modeling procedure. This was then followed by praising, rewarding, and tracking students'

progress on individual students' charts. (See Appendix E for a complete flow chart of the program design and the scripted directions for tutors).

The AIMSweb (R-CBM) benchmark assessment was a one-minute reading passage that students read aloud. Teachers then recorded the correct number of words read per minute and noted on the computer the number of errors made by the students. A series of reports, goal setting, and progress-monitoring tools were available for the teachers' use. Interventions were adjusted based upon students' growth toward the targets. This measure is further described in the data collection section.

Data Collection Instruments

The data collection instruments were both the English and Spanish versions of the AIMSweb (R-CMB). This tool was described on the Pearson's website as "the leading assessment and RTI [Response to Intervention] solution in school today—a complete web-based solution for universal screening, progress monitoring, and data management for grades K–12. AIMSweb provides guidance to administrators and teachers based on accurate, continuous, and direct student assessment" (retrieved from <http://www.aimsweb.com/about>). This website also described the curriculum based measurement (CBM) as a nationally normed assessment tool that could be used for screening and progress monitoring student growth and intervention. The AIMSweb assessment was also consistent with the CCSS K–5 reading and writing standards, and it was content valid (retrieved from http://www.aimsweb.com/wp-content/uploads/CBM-Common-Core_Mark-Shinn1.pdf). New York State has adopted these CCSS standards. The urban district used for this study has aligned local assessments (grades K–2) and state assessments (grades 3–8) with AIMSweb and the CCSS.

First, the AIMSweb screening tool was given as a pretest and progress monitoring measure for all students in schools throughout the study timeline. The HELPS intervention was provided to selected students in the experimental group. The HELPS program “was developed by integrating eight evidence-based fluency-building instructional strategies into a structured program that can feasibly be implemented by educators” (Begeny et al., 2012, p. 134). These strategies comprised (a) repeated readings (RR), (b) modeled reading by an adult, (c) systematic error-correction procedures, (d) goal-setting, (e) performance feedback through graphing and verbal statements provided by the instructor, (f) ongoing progress monitoring, and (g) a reinforcement system to help motivate a student’s performance and effort. HELPS program materials include (a) implementation protocols for implementers to use, (b) Progress Monitoring forms, (c) a Student Graph Form for each child for goal setting and performance feedback, (d) a Star Chart as a motivational incentive for each child, and (e) an examiner’s copy of the students’ passages for scoring reading performances during the repeated readings portion of the lesson (Begeny et al., 2012). All students were administered the AIMSweb (R-CBM) posttest and the results were compared.

Procedures Used

Several specific procedures were used in carrying out this research design. Personal contact was made with both administrative teams to seek their approval for inclusion in this study. After the college Institutional Review Board (IRB) approval, the district granted access to students’ archival performance data for the AIMSweb screening tool for both schools. A parental informational letter was sent to all of the control school’s identified students. All permission slips were hand delivered by an impartial

school staff member for all treatment-school qualifying students. The study was explained, and the forms were completed by the participants' parents. Tutors then solicited students' verbal consent for all experimental school participants. A four-hour training session was held prior to the start of the intervention. HELPS program researcher, Dr. John Begeny, facilitated the training session. The HELPS program was also implemented in English to general-education students who were not a part of this study. (See Appendix F for parental notification letters).

First, all students were given the pretest, the AIMSweb R-CBM screening. Information was compiled for all ELLs taking the assessment in Spanish and English. Students' fluency reading rates or WCPM were compared against HELPS program eligibility criteria. Students were identified whose scores fell within the program's target range. Students were then assigned tutors. Some children were not serviced due to the number of tutors and the time restrictions as to when they could be pulled from the classrooms. Identified students in the experimental school were then matched by similar academic performance on their fluency rates, or WCPM, with students in the control school. See Appendix C for HELPS selection criteria, and see Table 3.4 for the complete timeline.

Table 3.4

Research Design Procedural Timeline

Month	Procedures
August, 2013	<ul style="list-style-type: none"> • Seek permission from control school to use data • Confirm school staff and volunteers for program • Confirm HELPS program designer for October staff and tutor training • Seek approval for Study Proposal with committee
September– January, 2013	<ul style="list-style-type: none"> • Seek permission from RCSD for study and IRB Approval • Hold tutor and staff training session –4 hours • Administer AIMSweb screening assessment to all students (RCSD requirement) pretest • Collect and analyze data to identify treatment group • Seek parental consent (inform of intervention to receive) • Match treatment group to control group • Pair tutors and staff to treatment group • Start interventions
January– May, 2014	<ul style="list-style-type: none"> • Treatment sessions run three times a week for 10-minute sessions as push-in to literacy instruction • Hold tutor meeting to check for implementation issues • Complete implementation fidelity measures • Administer second round of AIMS-web mid-year assessment (RCSD expectations) • Check student growth scores—treatment vs. control group • Key staff monitor implementation periodically for program fidelity
May–June, 2014	<ul style="list-style-type: none"> • Administer AIMSweb posttest • Complete analysis of study results

The control group in Flour City received 120 minutes of literacy instruction, which included two hours of literacy development, as outlined in the District Curriculum Guide. This literacy block included NYS CCSS curricular domains for Listening and

Learning (40 minutes), a 50-minute Skills Strands program, and 30 minutes of Guided Reading and Independent Reading (GRAIR) flexible reading groups. No fluency instruction was a part of the core instructional program.

Flower City students in the treatment group received the same core instructional program as the control group, with the HELPS support integrated during this instructional block. Each targeted student received 10–15 minute one-on-one tutorial sessions, two to three times a week for seven months. Five first graders were added in late March and received 10 weeks of intervention support. Students' data was collected during the intervention. This included the number of sessions, attendance, and growth rate calculations. Finally, both groups were administered the posttest for the AIMSweb assessment. The amount of change in students' reading fluency rates, or the growth in the number of word count per minute, was compared. These results are reported in Chapter 4. A complete timeline is presented in Table 3.4.

Data Analysis

The data was analyzed using several strategies. This two-group nominal-variable (treatment vs. control) study design assessed the effectiveness of the independent variable (HELPS program) on the dependent variable (reading fluency). A *t*-Test: Two-Sample Assuming Unequal Variances was conducted as the data was normally distributed. The *p* value obtained was used to test the null hypothesis which stated, "There was no effect on the reading fluency rate of the treatment group that received the HELPS intervention program."

The effect size was calculated for the treatment effect using both the raw scores on the AIMSweb R-CMB and a Cohen *d* analysis.

Summary of Methodology

In summary, this study used both a valid and reliable assessment tool to measure growth in students' fluency, as measured by the number of words read per minute, and the rate of improvement measured to assess intervention effectiveness. Although this was a small sample size, the data was evenly distributed, and there was no need to use any nonparametric measures. This study was conducted to gain further research-based evidence that supported which interventions increased Home Language literacy for Spanish-speaking ELLs in the primary grades, within a dual-language setting.

Chapter 4: Results

Introduction

This chapter summarizes the results of the interventions outlined in the previous chapters and answers the research questions. It also discusses the HELPS program results in relation to the targeted elements and design measures outlined in the HELPS manual and referenced in Chapter 3. It concludes with a summary of the research findings.

Research Questions

The following research questions guided this research study:

- Do first- and second-grade supplemental, early literacy interventions, delivered in Spanish, increase the rate of fluency, as measured by the AIMSweb (R-CBM-Spn) screening reading assessment, for English-language learners in dual-language programs?
- Do third-grade supplemental, early literacy interventions, delivered in Spanish, increase the rate of fluency, as measured by the English AIMSweb (R-CBM) screening reading assessment, for English-language learners in dual-language programs?

Data Analysis

Sample size. There were 27 matched pairs in this study between the treatment and control schools. Students were matched, first, on their reading fluency rates and, second, whenever possible, by gender. Of the first graders (N = 10), 100% were matched by both fluency scores and gender. Of the nine matched pairs in second grade (N = 18) 67% were

matched by both criteria. Third graders ($N = 26$) had similar matched results, at 69% for fluency and gender pairing.

Table 4.1

Treatment and Control Sample Description

Grade	No. of Matches ($N = 27$)	Male	Female	% Matched by Gender
One	5	6	4	100
Two	9	9	9	67
Three	13	10	16	69

Results

Upon inspection of the distribution of the dependent variable, the change in word count per minute, there were no outliers in the distribution. Using a paired *t-Test*, it was determined that there was a statistically significant difference between the two groups in word count per minute. The average change in the treatment group was 36.8, while that of the control was 21.3 ($t = 3.08$, $df = 43$: two-tail $p = .004$). Based upon these results, the null hypothesis was rejected. This analysis strongly supported the conclusion that the treatment intervention did significantly impact students' reading fluency rates, thereby supporting the alternate hypothesis.

These results signify a large effect size (Cohen's $d = .94$). Using the raw data alone, the treatment group grew 15.52 more words per minute than students in the control group (Table 4.2).

Table 4.2

Parameter Estimates of the t-Test: Two-Sample Assuming Unequal Variance

	Treatment Change (N = 27)	Control Change (N = 27)
Mean	36.8	21.3
SD	22.4	13.5

This data analysis did not answer the research questions and the impact on student reading fluency rates based upon the language of the assessment. This is an area of further studies that is addressed in Chapter 5.

HELPS program results. The HELPS program data was collected and reviewed as a result of this study. Most students received 33 weeks of the intervention over the course of the 2013–2014 school year. All first graders and some second graders were added after the winter assessments. However, adjusting student-tutor assignments and finding scheduling times took a few weeks to complete, thus delaying the second round start time to mid-March. This resulted in 10 weeks for the added students. With student absences, changes in classroom schedules, and the school year calendar, students varied in the actual number of sessions they received. Overall, the more weeks and the greater the number of sessions the children in the treatment group received, the more accurately they read on the first read of a new passage. The average number of sessions for the 10-week students was 16.11, with a 7.44 WCPM improvement on their first read over the course of the program. Those students with a 33-week program averaged 53.33 sessions and improved their first read WCPM by 24.78 over the length of the program. These

results were consistent with the AIMSweb RCBM-Spn. and English results already reported.

Table 4.3

HELPS: Impact of Words Read Per Minute by Number of Sessions

Weeks in the Program	Average No. of Sessions	First Read WCPM Change
10	16.11	7.44
33	53.33	24.78

Additional Findings

An additional operation was conducted on the data that found the rates of improvement (ROI) scores for all students in the study. This measure calculated the number of weeks between assessments against the change in the words read per minute. The AIMSweb assessment tool provided the standard, norm, referenced rate of improvement needed to show adequate growth within the assessment period. The findings showed that 74% of the treatment students (N = 20) met their ROI rates while 33% of the control group reached their targets (N = 9). This was especially noteworthy in the first graders, where 80% met their ROI rates in the treatment school and 60% in the control school. However, the control group first graders were the only grade level to outperform the experimental school first graders in actual increase in frequency rates on the AIMSweb assessment (see Appendix G for student results).

Summary of Results

This section outlined the results of the two-tailed t -test and the Cohen's d on the fluency rates of the treatment group receiving the HELPS intervention. The results were statistically significant, rejecting the null hypothesis, and supporting the alternate hypothesis. The results of this study support the impact of the HELPS program on students' reading fluency. In fact, the results show that the longer children were in the program, the greater the impact on their reading fluency, as measured by the word count per minute from the AIMSweb RCBM assessment. The findings are significant to warrant further study and application that is outlined in Chapter 5.

Chapter 5: Discussion

Introduction

The outcomes outlined in Chapter 4 have potential implications when identifying effective instructional strategies to close the reading achievement gap in primary grades Spanish-speaking children. This chapter reviews these implications of the findings, highlights the strengths, notes the study's limitations, and offers methods to address these areas. Recommendations for future studies are offered as well. Finally, the conclusion summarizes this research design. This quantitative, pre/post-test, quasi-experimental, matched-pair group study accomplished the goal of assessing the efficacy of the early Spanish reading intervention HELPS program on accelerating students' fluency gains. In fact, students on the assessment measures far exceeded those of the control group students and this information has clear implications for future use.

Implications of Findings

Researchers have proven that children must be proficient readers by the third grade for the following reasons: (a) early-grade reading-proficiency rates continue to be the lowest for low income families and children of color, (b) the gap between struggling readers does not diminish over time, and (c) the connection between poverty, lack of reading proficiency, and failure to graduate from high school are highly correlated (The Annie E. Casey Foundation, 2013).

The results of this study have particularly important implications for developing higher levels of achievement in this target population of English language learners. First,

there is little variation between male and female achievement rates within this study, as 72% of the boys and 75% of the girls outperformed the control sample. This is especially crucial because underrepresented minority (URM) boys tend to lag farther behind than girls in performance assessments across the nation. In fact, researchers have confirmed that boys underperform girls in learning to read (Phillips, Norris, Osmond, & Maynard, 2002). There is a long history of programs to enhance reading instruction, with many not impacting higher rates of boys' achievement. The outcomes of this HELPS study demonstrated that boys performed equally as well as girls. An implication is that targeted HELPS for boys, alone, may produce higher rates of students' reading growth and proficiency.

The second implication impacts the sense of urgency in the country to close this achievement gap between disadvantaged and advantaged families. URM children, especially ELLs, are among the poorest in the country (Dominguez de Ramirez & Shapiro, 2007). Poor children equal poor educational growth. This achievement gap is actually a matter of economic security for the nation. The Annie E. Casey Foundation (2013) reported that for every dollar invested during the first six years of a child's life, there is an \$8.24 rate of return for the nation. In order to minimize the impact poverty has on improving educational outcomes, programs like HELPS need to be replicated. This may produce long-term gains for society.

A third critical implication of the findings is the affirmation that native-language development does indeed support higher levels of reading proficiency in English. This affirms the underlying theoretical framework of Cummins's threshold model posited throughout this dissertation. The findings demonstrate that students' English reading

growth is statistically significant, even when the reading intervention was in Spanish and the assessment was in English. Students in the treatment group grew 24.31 more words per minute than that of the control school. This confirms bilingual education researches, such as meta-analyses completed by August & Shanahan (2006) and Slavin & Cheung (2005), and posited by Cummins (1979), which found home language development does produce higher rates of new language growth. Continued use of home language is an important implication.

While HELPS will not solve all the social ills that impede students' success, it will aid in assisting more children read at higher rates of fluency for better comprehension.

Limitations

There were several limitations that might have affected the results of this study. One would think that the small sample size ($N = 54$) could be considered a limitation. However, the study also consisted of the largest sample size used for an empirical investigation to test the efficacy of the HELPS program within the ELL population (Begeny, 2009; Begeny et al., 2012). All previously published studies referenced a smaller sample size. The previous studies' limited candidate pools were randomized from a single location, thus, requiring nonparametric data analysis measures that were not as robust as those contained within this study. Additionally, this research design matched students across two schools to ensure homogeneity within a larger sample size.

One possible limitation was the length of time that the first and second graders received in intervention supports. Services were 10 weeks in length, beginning in March and ending in May. The HELPS program designer (Begeny, 2009) recommended a full

five months to show greater impact on reading fluency rates than this abbreviated period allowed. This was especially evident in the first graders as only five students qualified at the mid-year assessment. While the results were evenly distributed across the sample, the small number of first graders may have impacted the findings.

The lack of control for teacher quality could also be construed as a design limitation. However, it is certainly understandable when unanticipated situations arise and there needs to be a replacement because of factors beyond the control of the investigator. In the control school, only one of the two possible teachers completed the assessment measure, limiting the potential students and reducing teacher participation. One first-grade teacher at the experimental site was out on illness leave for five weeks (during the 10 weeks of the program). This absence impacted the delivery of the overall core instructional reading program. In addition, the first-grade participating teacher at the control school has historically high students' performance rates due to her instructional skill. These factors may have impacted the results given that the control first graders were the only subset to show higher fluency growth rates, and they outperformed the treatment school. Controlling for teacher quality is recommended for further studies. This could be accomplished by adding additional schools and controlling some of the following teacher quality factors: (a) account for the number of years in the profession, (b) review teacher performance ratings available on public websites, (c) check teacher attendance rates, and (d) investigate the level of teacher involvement in the school community.

This study design was unable to answer the research question on language of assessment and the impact on reading fluency rates. The findings could not be

disaggregated by language of assessment because the control school did not assess their third graders in Spanish.

Recommendations

There are many recommendations as a result of these research findings. First and foremost, continue to support dual-language or two-way bilingual programs that fully develop both home and new language skills in our Spanish-speaking ELLs in public schools today. It is imperative that native-language development be given the same status as English in the instructional day. This may mean increasing the time dedicated to language arts instruction. For example, increasing the time spent in Spanish reading while not reducing English reading instructional time (for bilingual program models that operate on a 90-10 or 50-50 model) is critical. The current national trend to extend the school year/day may help facilitate this recommendation.

In the original design, the intervention was implemented during the two-hour instructional literacy block. At times, this conflicted with ESL supports and explicit reading instructional programs within the demanding master schedule, causing students to miss some tutoring sessions. An alternative is to schedule the HELPS intervention to best match the needs of the teachers, students, and tutors. This would assure the correct number of sessions for maximum growth, using the five to seven month timeframe, as outlined by Begeny (2009).

The HELPS program (Begeny, 2009) was originally designed for English-speaking children and then adapted for use with ELLs who were learning English. This Spanish version was developed not only for ELLs in the United States but for Spanish-speaking countries as well. A comparison study should be considered to see the

differences in performance and the differences of fluency growth rates between the international students.

This study should be replicated in other bilingual programs to ascertain the same statically significant results for ELLs. Full implementation across more schools, or a district, should be considered. In order to be successful, there should be a district-level coordinator that works with building level supports. This would involve volunteer coordination, staff and program implementers training, and procurement of the program materials (easily available online at no cost to participating educators). I would recommend sending a district representative to a HELPS training session or facilitating an in-district training with the HELPS Foundation.

Additional studies are also recommended. Anecdotal documentation emerged that was suggested as students improved in their reading fluency rates. They demonstrated greater levels of enthusiasm, wanting to come to tutoring and stating how they now enjoyed reading. A mixed-methods follow-up study could capture this increase in students' self-confidence through a qualitative approach.

Another follow-up study should consider the impact of better reading fluency on improved comprehension and the impact on content-area performance. The national rise of the Common Core Learning Standards (CCLS) requires students to perform to higher levels of rigor and reading proficiency across all content areas, including mathematics. Further study is needed to show if there is a correlation between increased fluency rates, using the HELPS program, and possible content-area performance rates.

A further follow-up study could be done to identify which grade level produces the greatest rate of return for students. Assessing children in both languages would be

essential is disaggregating the data and validating the importance of both languages. The results of the study would allow a district to target this intervention to a specific grade level to maximize program effectiveness. Based upon this investigator's 30 years of experience working with elementary children, second grade should be the focal point of investigation. Second grade is the academic year when children have a solid foundation in the basic reading skills to concentrate on improving their fluency rates. Fluent readers have better comprehension and are more ready to make the transition to third grade where the focus changes from "learning to read" to "reading to learn." As mentioned previously, third grade requires children to read independently to understand and synthesize content and generate new meaning. Children with limited fluency and vocabulary are unable to perform at this rigorous level, failing to meet the higher performance expectations.

A final recommendation for further research involves follow-up investigation (perhaps a more comprehensive study conducted over several years, using a longitudinal design) to determine whether children retain the gains realized in fluency. In other words, do these changes last?

Conclusion

This study explores the efficacy of using one effective, early-literacy intervention program, HELPS, for primary aged, Spanish-speaking, English-language learners in dual-language classrooms. The goal was to see if students' reading fluency will increase if offered a Spanish-reading fluency-intervention program. Identified treatment school students, which meet HELPS program entrance criteria, receive one-to-one tutorial sessions three times a week for 10–15 minutes in each session. The length of the program lasts between 10 weeks to seven months.

The study occurred in two schools within a large, urban school district in the northeastern part of the United States that operate similarly designed bilingual dual-language programs. The study used a quantitative, pre/post-test, quasi-experimental, matched-pair group design. The targeted population was students in grades 1 through 3 who were ELLs in dual-language programs.

Students were identified for the study using the AIMSweb test for reading fluency in Spanish and assessed in either Spanish or English (R-CBM-Spn and R-CBM). Selected students in the experimental school were then matched with similarly performing students in the control school on the assessment measure. All grade 1 students and four grade 2 students were added mid-year and received 10 weeks of intervention. All others received the full seven months of intervention support.

Upon inspection of the distribution of the dependent variable, the change in word count per minute, there were no outliers in the distribution. Using a paired *t-test*, it was determined there was a statistically significant difference between the two groups in word count per minute. The average change in the treatment group was 36.8, while that of the control was 21.3 ($t = 3.08$, $df = 43$: two-tail $p = .004$). Based upon these results, the null hypothesis was rejected and the alternate hypothesis was supported. This analysis strongly supports the conclusion that the treatment intervention does have a significant impact on students' reading fluency rates. These results signify a large effect size (Cohen's $d = .94$). Using the raw data alone, the treatment group grew 15.52 more words per minute than students in the control group. These results support the premise of bilingual education researchers that the use of native or home-language literacy development enhances new language or English-language development.

The study is not able to discern the HELPS program's impact by grade level nor is it able to disaggregate the effect by child for each language tested (Spanish assessments were not conducted on the third grade control group). Furthermore, tutors reported during exit interviews that student self-confidence and enthusiasm for reading increased during program implementation. Further research is warranted in these areas as well as in assessing the impact of increased fluency rates on content area performance.

Chapter 1 presents the problem statement, theoretical rationale, significance of the study, and the purpose of the study. The United States is facing a crisis in providing ELLs with effective literacy education. This is critical as the size of this population continues to rapidly increase, with URM of Latino decent totaling 11.4 million of the entire school population (NCES, 2013). This problem is further exacerbated because the majority of this population also lives in poverty (Dominguez de Ramirez & Shapiro, 2007) and performs well below their monolingual counterparts (National Center for Statistics, 2013). It is essential that the nation identifies effective methods to educate language minority students. This study's problem statement focuses on assessing the effectiveness of one early-intervention program to help close the achievement gap for primary-grade ELLs in dual-language classrooms. This study supports the strong theoretical research that native-language development enhances English-language learning. The threshold model (Cummins, 1979) provides the theoretical basis for this research design. The purpose of this study was to assess the efficacy of the HELPS program, which aligns with Cummins's threshold theory of second-language acquisition application, as it applies to developing native-language fluency skills in primary Spanish-speaking English-language learners.

Chapter 2 provides a review of the extensive literature, supporting the need for further research to close the achievement gap between ELLs and English-only students. This includes several meta-analyses of types of bilingual education programs and the impact of both home, or native language and new language, on students' English performance. This review also includes an analysis of best practices for literacy instruction and evidence of intervention programs that works for URM students that speak Spanish. This chapter includes a historical review of bilingual education, addressing legislative and judicial decisions that formulate laws mandating bilingual education programs. Of significance is the Bilingual Education Act (1968), better known as Title VII, which designated federal funds to states to better address the educational needs of language minority students. This legislation allowed states to develop bilingual-education programs and was reauthorized multiple times. Further legislation of note is the No Child Left Behind (NCLB) legislation of 2002 that changed the political landscape and allowed English-only programs as a method to develop English proficiency in ELLs throughout the nation.

This paper has a pro-bilingual stance and shares the scientific literature clustered into four areas: (a) development of literacy in second-language learners, (b) effective bilingual education practices, (c) instructional approaches and interventions, and (d) student assessment. The mandates of the NCLB legislation changes assessment criteria; these high-stakes measures impact the types of programs offered to ELLs in the push for English-language development. The impact of NCLB and federal legislation is negatively impacting language-minority children. Overall, this literature review shows that ELLs develop English proficiency and higher academic growth when educators capitalize on

students' entire language abilities. This means, using both Spanish and English strengths to support literacy in both languages. Mainstream researchers are now looking to identify ways to close the achievement gap between monolingual and ELL children. The literature reviewed finds that ELLs respond to research-based best practices for reading skill development. Most notable are the preliminary results of fluency and comprehension interventions that have emerged for ELLs' English-literacy development. However, there is still a gap in the literature in this area, and it warrants further study. Research must continue to address factors that can help ELLs perform better and close the achievement gap.

Chapter 3 provides an explanation of the methodology used in this study. Using the Helping Early Literacy with Practice Strategies (HELPS) reading fluency program (Begeny et al., 2012) as the reading intervention tool, students' reading fluency growth was measured using the AIMSweb Reading-Curriculum-Based Measurement (R-CBM) (Pearson, 2013) screening tool. Students were matched by rate of words read per minute, first, and then by gender, when possible, on the pretest. The posttest results were compared and the rate of change recorded for each student. All treatment students and their families consented to participate. All control families were notified of the study as well.

Chapter 4 describes the results of the study. There were 27 matched pairs in this study between the treatment and control schools. The conclusion's introduction outlines the results of the study, showing there was a statistically significant difference between the two groups in word count per minute. Based upon these results, the null hypothesis

was rejected. This analysis strongly supports the conclusion that the treatment intervention did have a significant impact on students' reading fluency rates.

Chapter 5 presents the discussion on the results. It outlines the implications of the findings, addresses some study limitations, and offers recommendations for future study.

In conclusion, this study's findings have great implications on what educators and policy makers provide for URM children that are English-language learners. First, the best education setting has proven to be one where home language is respected and utilized for full literacy development. Second, state- and district-level decisions should support Spanish instruction by providing appropriate materials and time in the schedule to fully develop home or native-language proficiency. Third, this study proves that Spanish language interventions enhance reading fluency rates in both target languages and should be supported at the building and district levels. Further study on increased reading fluency is warranted to assess the impact on students' reading self-confidence, impact on content-area instruction, and to identify which grade demonstrates the greatest return on investment. Improved URM reading performance is critical to the nation as a whole.

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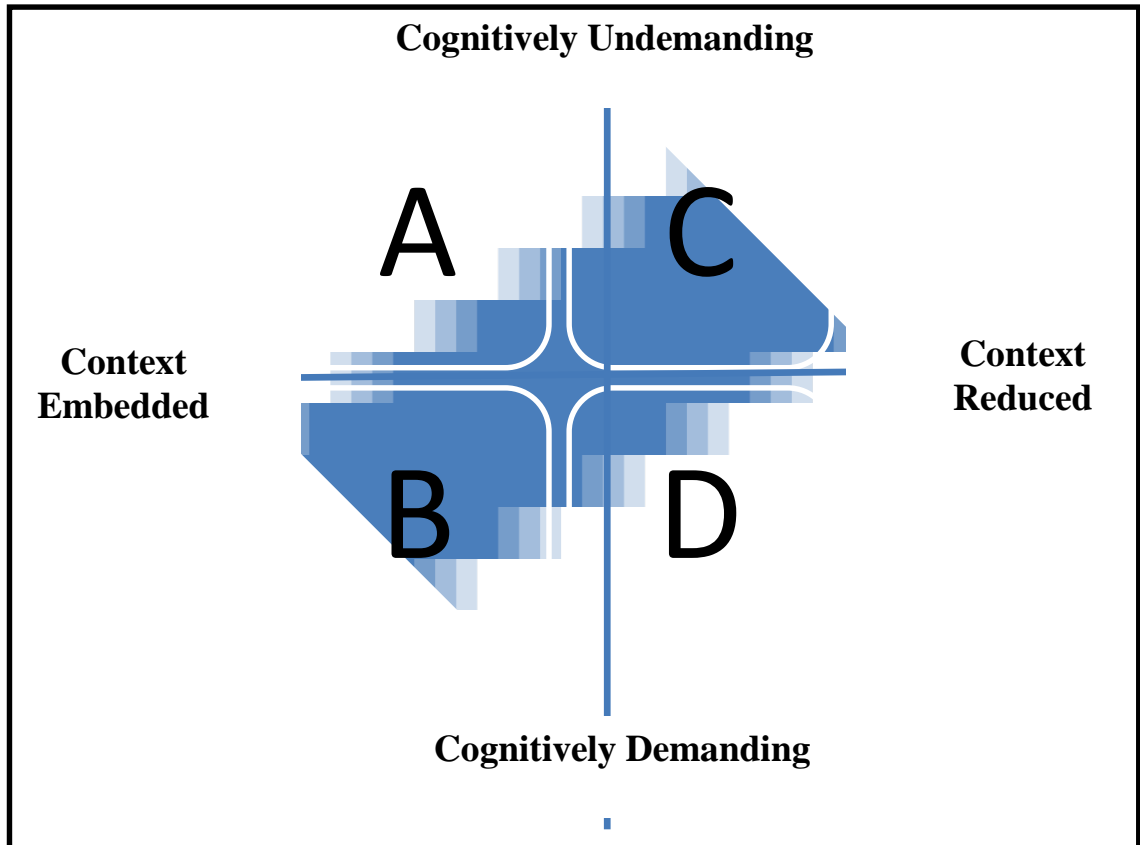
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Appendix A

Range of contextual support and degree of cognitive involvement
in language tasks and activities.



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Appendix B

Summary of the Literature Review

Study Authors	Type of Study	Topic Addressed	Measurement Tools Used	Purpose of Tool
Development of Literacy in Second Language Learners Studies				
Cassell Johnson (2009)	Qualitative- ethnographic study	Investigates how Applied Linguistic Research can shape interpretation of Title III of NCLB (addressed gap in lit.)	<ul style="list-style-type: none"> • Participants observations, field notes, coded meetings 	<ul style="list-style-type: none"> • Develop themes using Applied Linguistic Research in the creation, interpretation and appropriation of language policy
de Jong (2006)	Qualitative	Use of alternate late exit TBE other than TWBE	<ul style="list-style-type: none"> • Coded and analyzed writing of teacher participants 	<ul style="list-style-type: none"> • Capture themes
Lopez & Tashakkori (2004)	Quantitative	L1 to L2 development comparison in TBE and TWBE programs	<ul style="list-style-type: none"> • Scholastic Reading Inventory (SRI) • Kindergarten Assessment Guide • Sight words • Emergent Reader Survey 	<ul style="list-style-type: none"> • Measure reading comprehension • Diagnostic survey of alphabet knowledge • High frequency words • Measure alphabet, PA, RRR, and HFW
Lopez & Tashakkori (2006)	Mixed	Use of L1 to L2 connection in TWBE and TBE programs and attitudes towards Spanish	<ul style="list-style-type: none"> • Oral Language Proficiency Scale(ORFS-R) and Likert-type questionnaire 	<ul style="list-style-type: none"> • Asses students' oral language skills- L2 • Identify themes and attitudes about Spanish
MacSwan & Pray (2005)	Quantitative	Review argument against BE and in favor of SEI. Use of L2 proficiency to measure L2 achievement	<ul style="list-style-type: none"> • Bilingual Syntax Measure (BSM)- English only 	<ul style="list-style-type: none"> • Assess language proficiency levels independent of academic achievement

Cross-Linguistic Relationships in Second Language Learners				
Denton et al. (2004)	Quantitative- Matched pair study	Analyze the effectiveness of two tutoring programs on ELLs' English language proficiency on Spn. and Eng. performance	<ul style="list-style-type: none"> • Woodcock Reading Mastery Tests-Revised (WRMT-R; Woodcock, 1987) 	<ul style="list-style-type: none"> • Measures total reading inventory
Tse (2001)	Qualitative	Study of maintenance of HL and bilingualism	<ul style="list-style-type: none"> • Screening Survey • Interviews (coding) 	<ul style="list-style-type: none"> • Develop themes • Use of qualitative coding outlined by Straus & Corbin (1998) • Screened for biliteracy
Proctor et al. (2010)	Quantitative	To study the impact L1 reading on L2 reading	<ul style="list-style-type: none"> • Reading passage in HL and summarize in English • Woodcock Language Proficiency Battery- R (Woodcock, 1991; Woodcock and Muñoz-Sandoval, 1995) 	<ul style="list-style-type: none"> • Measurement of Spanish and English reading proficiency levels

Instructional Approaches and Interventions				
Study Authors	Type of Study	Topic Addressed	Measurement Tools Used	Purpose of Tool
Begeny et al. (2012)	Quantitative	Fluency and comprehension for ELLs using HELPS program	<ul style="list-style-type: none"> • <i>The Oral Gray Reading Test, Fourth Edition</i> (GORT; Weiderholt and Bryant 2001) 	<ul style="list-style-type: none"> • Measured reading fluency and comprehension
Dominguez de Ramirez & Shapiro (2006)	Quantitative	Attempted to examine expected oral reading fluency growth rates among ELLs in Spanish and English in BE classrooms	<ul style="list-style-type: none"> • Curriculum- Based Measurement- Revised (CBM-R) 	<ul style="list-style-type: none"> • Determines oral reading fluency (outlined in Shinn and Shinn, 2002)
Dominguez de Ramirez & Shapiro (2007)	Quantitative	To fill the gap in the literature- Does ORF in L1 serve as predictor of success in L2	<ul style="list-style-type: none"> • Curriculum- Based Measurement- Revised (CBM-R) 	<ul style="list-style-type: none"> • Determine ORF – L1 and L2

Ehri et al. (2007)	Quantitative	Evaluate the effectiveness of <i>Reading Rescue</i> (RES) tutoring program with ELLs that are struggling readers in English. Compared against <i>Voyager Passport</i> (Voyager Expanded Learning, 2004)	<ul style="list-style-type: none"> • Gates-MacGinitie Reading Tests (4th ed.: GMRT4; MacGinitie, MacGinitie, Maria, & Dreyer, 2000) MacGiniteGMRT-4 Level BR • Iowa Test of Basic Skills (ITBS) • RES Classwide Survey Assessment (Clay, 1993) 	<ul style="list-style-type: none"> • Assessing reading scores/ achievement • Achievement assessment in English • Participant identification of lowest performing students • Informal reading inventory
Deffes Silverman (2007)	Quantitative	Looked at vocabulary development across TWBE, SEI and EO classrooms	<ul style="list-style-type: none"> • Ekwall/Shauker Reading Inventory 14th ed. (Shauker & Ekwall, 2003) • Test of Language Development (TOLD) (Newcomer & Hammill, 1997) • Clay's Observation Survey (Clay, 2002) 	<ul style="list-style-type: none"> • Assesses student vocabulary knowledge • Measures Concepts About Print
Giambo & McKinney (2004)	Quantitative	To determine if PA intervention promoted L2 proficiency more than story-reading intervention in K ELLs	<ul style="list-style-type: none"> • IPT-1, Oral (Ballard et al., 1991) • Comprehensive Test of Phonological Process (Torgesen & Wager, 1997) 	<ul style="list-style-type: none"> • Measures oral reading proficiency • Measures Phonological Awareness (PA)
Malloy et al. (2007)	Quantitative	Use of Brief Experimental Analysis (BEA) to identify the best intervention strategies for struggling ELLs in English	<ul style="list-style-type: none"> • Oral reading Fluency (ORF) and MAZE 	<ul style="list-style-type: none"> • Measures of reading fluency and comprehension

Therrien (2004)	Quantitative	Meta-analysis- Studied use of repeated reading intervention to improve students' oral reading fluency and comprehension	<ul style="list-style-type: none"> • Fluency and comprehension effect size were calculated 	
Uchikoshi (2005)	Quantitative	Assess the impact of narrative development for kindergarten ELLs in BE programs; comparison of effect on two PBS educational programs Student Assessment	<ul style="list-style-type: none"> • School-Home Early Language and Literacy test Battery (SHELL) (Snow et al., 1995) 	<ul style="list-style-type: none"> • Assesses linguistic and narrative skills
Mahoney (2008)	Quantitative-Constructive Validity study	To address policy issues of testing ELLs in English on NAEP assessment- does L2 proficiency impact students' achievement on assessment	<ul style="list-style-type: none"> • 1996 NAEP Math Items • Linguistic Complexity 	<ul style="list-style-type: none"> • Math achievement measure • Analyze types of language skills needed for test mastery

Mahoney et al. (2009)	Quantitative	Studied the impact of Arizona testing mandates on reclassification of ELLs into mainstream classrooms- from multiple measures to single measure	<ul style="list-style-type: none"> • Stanford English Language Proficiency Test (SELP) • Arizona Instrument to Measure Standards (AIMS) • Prior to 2005 Tools: <ul style="list-style-type: none"> ○ Language Assessment Survey (LAS) ○ IDEA Proficiency Tests (IPT) ○ Woodcock-Muñoz Language Survey (WMLS) ○ Woodcock Language Proficiency Battery (WLPB) ○ Stanford- 9 	<ul style="list-style-type: none"> • Single measure to reclassify children to EO • Achievement test • Language proficiency measure (L2) • Language proficiency measure • L1 competency • L2 competency • Cut score on achievement test used to exit to EO
Laija-Rodriguez, Ochoa, & Parker (2006)	Quantitative	Studied the impact of cross-linguistic relationships – compared if combined CALP L1 and L2 proficiency against L1 and L2 reading growth measures	<ul style="list-style-type: none"> • CBM (Shinn, 1989) Spanish and English • WMLS (Woodcock & Muñoz-Sandoval, 1993)- Spanish and English • Teacher questionnaire 	<ul style="list-style-type: none"> • Measure oral reading fluency and reading accuracy • Measure reading growth using BICS and CALPS distinctions (Cummins, 1984) • Gather demographic information

Appendix C

HELPS Program Selection Criteria

Benchmark Assessment WCPM Scores That May Suggest a Student's Need for the HELPS Program

Student's Grade Level	Fall WCPM Benchmark Range	Winter WCPM Benchmark Range
First	*(see note)	20–33
Second	25–63	40–82
Third	20–81	35–102
Fourth	35–104	50–122

*(Beginning of year, first grade students with reading difficulties are unlikely to benefit from a fluency-based intervention because they likely need assistance with decoding, phonics, phonemic awareness, etc.) (Begeny, 2009, p. 10)

Appendix D

Observation Summary Form (OSF) for HELPS One-on-One Program Steps and Guidelines for Observing Teachers during their Implementation of the HELPS One-on-One Program

- 1. On the Observation Summary Form (OSF), record (a) your name, (b) the teacher's name, (c) the date, (d) the observation (OBS) session number (e.g., if the teacher has been observed 4 times previously, write "5" because this is the 5th OBS session), (e) the name of student receiving HELPS, and (f) the student's HELPS session number.
- 2. Wait patiently until the teacher is ready to begin implementing HELPS with the student and observe the teacher's organization and preparation for the session.
- 3. When the teacher begins Step 1 of HELPS implementation, start your stopwatch to begin monitoring the total time it takes the teacher to complete the session.
- 4. Throughout the HELPS implementation session, if the teacher implements a step out of order, forgets to implement a step, or makes a *major* procedural error when implementing a particular step (and the teacher does not self-correct the mistake within 7-10 seconds), use immediate corrective feedback regarding the error made. Be sure to correct the mistake in a respectful, clear, and concise way. The table at the end of this checklist specifies all *major* procedural errors. Steps missed on the Tips and Reminders checklist are considered *minor* errors and will be discussed with the teacher after he/she completes the session (as described below). (Applicable?)
- 5. Throughout the HELPS implementation session, record all steps the teacher completes correctly on the Observation Checklist for Implementing the HELPS Program. Steps should be recorded for implementation of both Core Procedures and Tips and Reminders.
- 6. For each Timed Reading the student completes during the HELPS session, follow along on your examiner copy and record student errors. You do not need to time the student, but make sure the teacher accurately times the student for one minute.
- 7. At the end of the entire HELPS session (after the student returns to class and the teacher completes the Progress Tracking form), stop your stopwatch and record the following information on the OSF: (a) whether the student met his/her goal, (b) the duration of the HELPS session in minutes and seconds, (c) the number or % of steps the teacher completed accurately from the Core Procedures checklist, (d) the Step #s (e.g., 3, 5a) not implemented from the Core Procedures (if applicable), (e) the number or % of steps the teacher completed accurately from the Tips/Reminders checklist, (f) your evaluation of the teacher's enthusiasm during the session, and (g) your evaluation of the teacher's organization during the session.
- 8. On your Observation Checklist, record all Inter-Scorer Reliability Agreement (ISRA) data.
- 9. Reset and start your stopwatch again. Next, identify at least 2-3 steps that the teacher carried out correctly. The praise that you provide should be genuine, enthusiastic, and specific (e.g., "Nice job accurately describing why the student earned the star on his chart by telling him he earned it for meeting his goal on the first reading"). When applicable, you should provide specific feedback about "targeted improvements" the teacher made since an earlier OBS session (related to step 17 below).
- 10. Share the data you recorded in parts *b, c, d, e, f,* and *g* (from step 7 above) with the teacher.
- 11. If you provided immediate feedback during the HELPS session (i.e., major implementation steps were

skipped or implemented incorrectly), briefly review those implementation errors and ask the teacher if he/she has any questions about those steps. When appropriate, provide a rationale for why a step should be performed in a particular way. (If you are uncertain about this information, write down the question, consult the HELPS Teacher's Manual, and later share that information with the teacher). (Applicable?)

- 12. If there were steps from the Tips and Reminders checklist the teacher did not implement, review those missed steps with the teacher and, if needed, discuss any questions the teacher has about those missed steps. (Applicable?)
- 13. If you did not rate the teacher's enthusiasm and/or organization as "outstanding," provide a rationale of your evaluation to the teacher and discuss the situation as needed. (Applicable?)
- 14. If applicable, provide additional feedback (i.e., feedback not related to the Implementation Protocol or Tips and Reminders Checklist) to the teacher that will likely help him/her implement HELPS better in the future. For example, you may offer advice about how to organize HELPS materials in the most effective and time efficient way. (Applicable?)
- 15. Ask the teacher if he/she has any questions about HELPS implementation procedures (or the program, in general) and answer/discuss those questions as needed.
- 16. Record the topics discussed in steps 14 and/or 15 on your OSF.
- 17. At the end of the OBS session, identify 1-3 things (as deemed appropriate/applicable) the teacher should improve upon during subsequent HELPS sessions with students (these are considered "targeted steps" for the teacher to improve). Make sure the teacher has a final opportunity to ask questions about what to improve and how to do so. You should demonstrate the 1-3 step(s) as needed. Note: the 1-3 targeted steps for improvement should have already been discussed in Steps 11, 12, 13, and/or 14 above. (Applicable?)
- 18. Thank the teacher for his/her time and effort and conclude the OBS session. Overall, the teacher should finish each OBS session feeling positive and better prepared to implement the HELPS Program, rather than feeling judged or deemed inadequate.
- 19. Stop your stopwatch and record on your OSF: (a) the duration of the post-session OBS meeting, (b) whether all teacher questions/concerns were addressed, (c) whether all missed steps and tips/reminders were reviewed, (d) all Core Procedures not implemented, and (e) any additional, meaningful notes about the meeting. Finally, based on the 1-3 targeted steps to improve (described in step 17 above), specify these targeted steps on your OSF or write "None" if no Core Procedures or Tips/Reminders were missed.
- 20. Review steps 1-19 above and: place a "✓" in the box for completed steps; place a circle "O" around the box for non-applicable (NA) steps; place a "X" in the box for skipped steps; and use arrows "←→" to specify if and how a step was implemented out of order. This self-feedback should help you to reduce or eliminate Xs or arrows in your next observation session with a teacher.

Percentage of steps completed = total steps completed / total steps applicable: ____/____ x 100 = _____%

Examples of Major (versus Minor) Procedural Errors for Each Core HELPS Instructional Procedure

Core Instructional Procedure	Examples of Major Implementation Errors
Verbal Cueing procedure (i.e., the introductory statement and expectations)	<ul style="list-style-type: none"> • Teacher does not provide any portion of the introductory statement to student before the student reads first passage of session
Repeated Reading (Timed Reading) procedure	<ul style="list-style-type: none"> • Teacher does not provide any form of directions or provides inaccurate directions before starting procedure • Teacher has student read the wrong passage • Teacher records student’s words read aloud in less than or more than one minute
Retell procedure	<ul style="list-style-type: none"> • Teacher does not provide any form of directions or provides inaccurate directions before starting procedure • Teacher ends Retell check in less than 5 seconds • Teacher continues Retell Check for more than 1.5 minutes
Modeling procedure	<ul style="list-style-type: none"> • Teacher does not provide any form of directions or provides inaccurate directions before starting procedure • Teacher never pauses to have student read next word in the passage after reading approximately $\frac{3}{4}$ of the passage
Phrase-drill Error Correction procedure	<ul style="list-style-type: none"> • Teacher does not provide any form of directions or provides inaccurate directions before starting procedure • Teacher does not have student practice WIPM (as recorded by teacher in most previous Timed Reading)—applicable only when student has WIPM
Goal Setting procedure	<ul style="list-style-type: none"> • Based on teacher’s recording of student data, teacher incorrectly determines whether student met the Reading Goal by assessing the WCPM, WIPM, and Retell Check criteria • Teacher states that student met Reading Goal but does not start student on next passage in Step 5a
Performance Feedback/Graphing procedure	<ul style="list-style-type: none"> • While graphing the student’s performance, teacher does not show student the graph at all before moving to the next step
Motivational (Reward) Procedure	<ul style="list-style-type: none"> • Teacher provided no praise during entire session • Teacher awarded the incorrect number of stars that should have been earned • Teacher does not acknowledge that student earned a prize from prize box—applicable only when student receives a star in the last square of a shaded

Observation Summary Form (OSF) for HELPS One-on-One Program

Teacher's Name: _____ Observer's Name: _____

Date: _____ Observation (OBS) session #: _____ Second Observer (if applicable): _____

Student receiving HELPS: _____ Student's session #: _____ [Student met goal: Yes No] [Session Duration: _____]

Teacher implemented _____ % of primary protocol, and _____ % of tips/reminders. [Enthusiasm with student: _____] [Organization: _____]

(Rate Enthusiasm and Organization/preparation 1 – 5; 1=poor, 3=average, 5=outstanding)

Core Procedures not implemented (List step numbers and write notes if needed):

Observer notes during OBS (e.g., notes of tips/reminders not implemented): _____

Questions or concerns raised by teacher (or additional notes or feedback provided by observer): _____
_____ Targeted Steps:

Duration of OBS session: _____ [All teacher questions/concerns were addressed: Yes No] [All missed steps & tips were reviewed: Yes No]

Teacher's Name: _____ Observer's Name: _____

Date: _____ Observation (OBS) session #: _____ Second Observer (if applicable): _____

Student receiving HELPS: _____ Student's session #: _____ [Student met goal: Yes No] [Session Duration: _____]

Teacher implemented _____ % of primary protocol, and _____ % of tips/reminders. [Enthusiasm with student: _____] [Organization: _____]

(Rate Enthusiasm and Organization/preparation 1 – 5; 1=poor, 3=average, 5=outstanding)

Core Procedures not implemented (List step numbers and write notes if needed):

Observer notes during OBS (e.g., notes of tips/reminders not implemented): _____

Questions or concerns raised by teacher (or additional notes or feedback provided by observer): _____
_____ Targeted Steps:

Duration of OBS session: _____ [All teacher questions/concerns were addressed: Yes No] [All missed steps & tips were reviewed: Yes No]

Observation Checklist for Implementing the HELPS One-on-One Program

Teacher observed: _____ Observer: _____ Student: _____ Date: _____

Implementation of Core Procedures

(Place “✓” in the box for completed steps; Place “X” in the box for skipped steps or those implemented with major errors; use arrows “←→” to specify if and how a step was implemented out of order)

List of Steps (if Goal is met): 1 ; 2 ; 3 ; 4a ; 5a ; 6a ; 7a ; 8a ; 9a ; 10a ; 11a ; 12a ; 13a

List of Steps (if Goal is not met): 1 ; 2 ; 3 ; 4b ; 5b ; 6b ; 7b ; 8b ; 9b ; 10b ; 11b ; 12b

Percentage of steps completed = total steps completed / total steps possible ____/____ x 100: _____%

Implementation of Tips and Reminders (steps missed below are considered minor errors)

(Place “✓” in the box for completed steps, Place circle “O” around the box for non-applicable [NA] steps)

General Implementation Procedure

- Teacher had the following materials available and organized before starting the session: stop watch, examiner passage, student passage, dry-erase marker, pencil, student graph, Progress Tracking Form, Star Chart, Bonus Bag, Implementation Flow Chart, and Scripted Directions. Also, the prize box was reasonably accessible.
- Teacher used Scripted Directions or Abbreviated Directions as advised at top of Abbreviated Directions.

Repeated Reading (and Timed Reading) Procedure

- After each student oral reading, teacher indicated on the examiner passage (with a bracket) the number of words read in one minute.

If teacher recorded all student readings with dry-erase marker before transferring scores to the Progress Tracking Form, he/she:

- Put the appropriate number (i.e., 1, 2, or 3) next to the one-minute bracket. (Applicable?)
- Marked student errors differently during each reading (e.g., first reading = slash, second reading = underline, third reading = circle). (Applicable?)

Retell Check Procedure

- Before prompting student to begin the Retell Check, teacher made sure student could not review the passage during the Retell Check.
- Teacher used broad follow-up questions to solicit student’s retell *only* if student was unable to retell the passage for approximately 30 seconds. (Applicable?)
- Teacher implemented Retell Check within approximately 45 seconds (unless he/she made a decision prior to the session to lengthen the Retell Check).

Goal Setting Procedure

- Teacher told student he/she met the Reading Goal. (Applicable?)

Phrase-Drill Error Correction Procedure

- Teacher always stated the word the student read incorrectly before having the student read the phrase, and teacher asked student to practice “logical” phrases.
- Teacher told student to “READ” the phrases, and did not ask the student to “SAY” or “REPEAT” phrases.
- Teacher had the student practice all incorrectly read words (up to 5 words or until time permits).
- Teacher pointed (or had the student point) to each word practiced.
- If student made 1 or fewer errors, the teacher told the student to practice 1-3 words or phrases that were read less fluently. (Applicable?)
- If student practiced words that were read *correctly* but less fluently (see above step), teacher explained to student that he/she read the words correctly, but will practice them because they are difficult. (Applicable?)

Modeling Procedure

- Teacher read aloud at a pace just a little faster than the student’s reading ability.
- Teacher read with good expression.
- Teacher read at a volume the student could clearly hear.

- Teacher paused 5-7 times to have student read the next word in the passage.

Performance Feedback (Graphing) Procedure

- While graphing, teacher gave verbal feedback and praise regarding the student’s WCPM and WIPM scores.
- Teacher graphed WCPM and WIPM on 2 or 3 readings (3 if the Goal was met; 2 if the Goal was not met).
- Teacher connected lines between WCPM (and WIPM) scores *only* for scores of the same passage.
- Teacher circled the data point and session number when the student began a new passage. (Applicable?)

Motivational (Reward) Procedure

- Throughout the session, teacher provided a minimum of three different praise statements regarding student’s reading behavior.
- When awarding stars on Star Chart, teacher accurately told student why he/she earned each star.
- With enthusiasm, teacher praised *specific* reading behaviors (e.g., nice job reading *accurately* and with *good expression*; I like how you *corrected words you missed previously*) and praised student for specific reading behaviors or improvements at the end of the session.
- If the student landed on OR passed a shaded square on Star Chart, student was allowed to select a ticket from the bonus bag and teacher correctly recorded the bonus stars written on the ticket. (Applicable?)
- Teacher conveyed that improved reading skills, rather than the opportunity to earn stars/prizes, is the primary reason the student should put forth effort during each HELPS session. (Applicable?)

Using the Progress Tracking Form

- After finishing the session, teacher completed the Progress Tracking Form before erasing data from the examiner passage.
- Teacher recorded 2 or 3 sets of WCPM/WIPM scores on the Progress Tracking Form, as determined by whether the student met his/her Reading Goal on passage A (3 sets of scores were recorded if Goal was met; 2 sets of scores were recorded if Goal was not met).
- Teacher correctly recorded the number of procedural steps implemented *incorrectly* in the “# of Steps Forgotten” column.
- Teacher recorded relevant information in the Notes column of the Progress Tracking Form (e.g., student difficulties with Retell Check, behavior problems, attention difficulties, etc.). (Applicable?)

Total steps applicable = 32 total check boxes – number of boxes circled as NA ___ = ____

Total steps completed = number of boxes with a check mark = ____

Percentage of items completed = total items completed / total items applicable ____/____ x 100

Percentage of items completed: _____%

Inter-scoring Reliability Agreement (ISRA) of the Student’s Timed Readings

Discrepancies / Total words read:

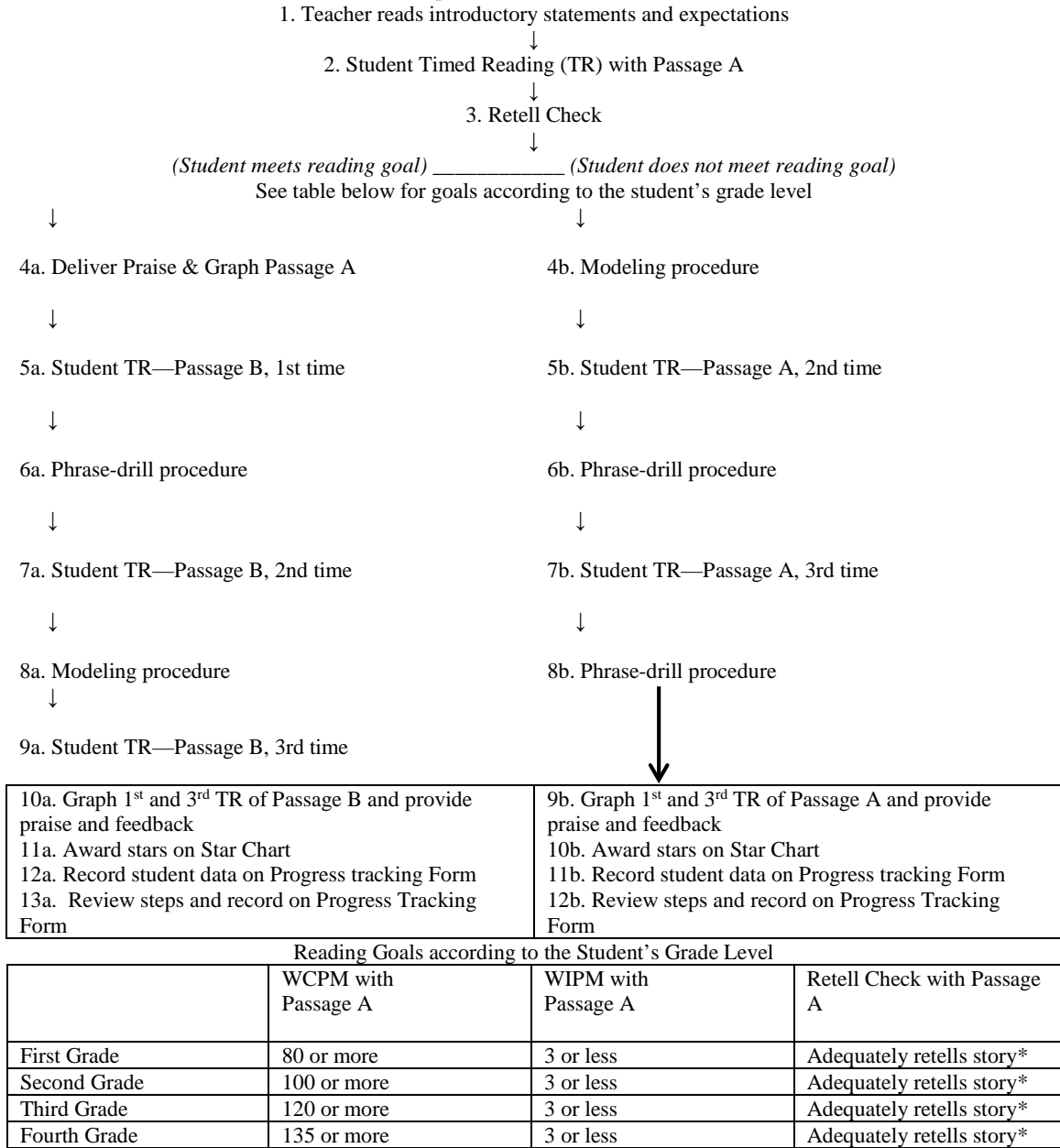
Reading 1: ___/ ___ ISRA%: _____ Reading 2: ___/ ___ ISRA%: _____

Reading 3: ___/ ___ ISRA%: _____ Reading 4: ___/ ___ ISRA%: _____
(When applicable)

Appendix E

HELPS Program Design

HELPS One-on-One Program Implementation Flow Chart



* For example, student retells parts of the story for at least 30 seconds or otherwise correctly states names of characters and major events in the story. Retell of the story in the correct sequential order of major events is encouraged but not required to pass the Retell Check (Begeny, 2009. P. 116).

HELPS One-on-One Program: Scripted Directions

Introductory statements and expectations (includes Verbal Cuing Procedure):

<Student Name>, you're going to be doing some reading with me today. As you read, I want you to do your best reading. This means I want you to read as quickly as you can without making mistakes, and try to read with good expression (like I do when I read to you). I also want you to remember what happens in the story and try to remember the difficult words that we practice.

Directions to administer before a Timed Reading (as part of the Repeated Reading Procedure):

1. Place the teacher copy of the reading passage in front of you but shielded so the student cannot see what you record. The teacher copy of each passage contains word counts at the end of each line.
2. Place the student copy of the reading passage in front of the student, but cover the beginning portion of the passage until you are ready for step 4 below. (Do this so the student does not begin reading while you provide directions).
3. Say to the student, "Here is a story that I would like you to read. When I say 'Begin', start reading aloud at the top of the page and read across the page. Try to read each word. If you come to a word you don't know, I'll tell it to you. Do you have any questions? Be sure to do your BEST reading."
4. Say, "Begin!" and start the stopwatch when the student says the first word.
5. Score the student's WCPM and WIPM according to the Timed Reading Scoring Rules (see HELPS Teacher Manual).
6. At the end of one minute, place a closed bracket after the last word.
7. *If the student reads so fast that no expression is given, remind the student that when he/she reads the next story, you want him/her to read at a comfortable rate (i.e., with good expression, like when you read).*
8. Remove both copies of the reading passage.

Directions for administering Retell Check Procedure:

1. Remove the student passage in a way to ensure student cannot review the passage during the Retell Check.
2. Say to the student, "Now I want you to tell me everything you remember about the story you just read. Try to tell me what happened in the correct order."
3. Start your stopwatch and stop the retell activity in 30-45 seconds. Use prompts or follow-up questions as appropriate.
4. If student clearly struggles to remember parts of the story during his/her retell, note this on the student's tracking sheet and use this information when determining whether the student met his/her Reading Goal.

Directions for administering Phrase-drill Error Correction Procedure:

1. Say to the student, "Now we are going to practice some of the words you missed."
2. Point to the first error word, say the word, and then say, "Read this after I do, <read the 2-8 word phrase containing the error word>. Again, Again." In essence, allow the student to read the phrase three times. Make sure the student points to the words being read; students will sometimes just "memorize" the phrase and repeat it. (Teachers want students to read, rather than recite).
3. Repeat the above procedure for all *unique* error words in the passage (up to 5 or until time permits).
 - a. If a student makes 1 or fewer errors, practice 1-3 phrases the student read less fluently. Use the procedures above, except the student should be told "Now we are going to practice some words you read correctly, but they are difficult and we should practice them."
4. Praise the student for every two to three sets of phrase-drills.

Directions for teacher to read passage aloud (Modeling Procedure):

1. Say to the student, "Now I am going to read today's story to you. Please follow along with your finger, reading the words to yourself as I read them. Sometimes I will stop reading to make sure you are following along. When I stop, you need to tell me the next word in the story. If you read the correct word, this will show me you are reading along with me and doing your best."
2. Read the passage at a comfortable reading rate and with good expression for approximately 1.5 minutes or until you read the entire passage. Make sure the student is following along with his/her finger and prompt the student to do this, if necessary.
3. While reading the passage, stop 5-7 times in order to have the student read the word that immediately follows the word you stopped at.
4. At the end of the activity, praise the student for his/her effort (as applicable). (Begeny, 2009, p. 11).

Appendix F

Parental Notification Letters



Invierno, 2014

Apreciados Padres y Tutores,

Este año estamos trabajando con servicios de intervenciones adicionales para ayudar a nuestros niños. Dentro del bloque normal de 2 horas de alfabetización diaria, tenemos un período intervención y enriquecimiento de 30 minutos.

Su hijo(a) ha sido identificado para participar en el programa Ayudando a la Alfabetización Temprana a través de Estrategias de Práctica (siglas en inglés: HELPS). Este programa está especialmente diseñado para ayudar a los niños a mejorar su fluidez y ayudarles a desarrollar una mejor comprensión de la lectura. Nosotros creemos que su hijo(a) se va a beneficiar con esta enseñanza adicional, individualizada. La meta es de ayudar a que su hijo(a) se convierta en un mejor lector.

Su hijo(a) recibirá una sesión de 1:1 con un profesional entrenado tres veces a la semana durante el bloque de lectura. Ellos leerán pasajes varias veces, enfocándose en mejorar su precisión y rapidez. El maestro se enfocará en los errores hechos, y en las maneras para mejorar su entendimiento del pasaje. Esto significa que trabajan en volver a contar. Una vez los niños alcancen la meta de palabras por minuto, entonces se moverán a una nueva historia. Cuando usted reciba el informa de notas de su hijo(a), tendrá una sección adjunta que documenta el progreso de su hijo(a).

Los resultados de su niño/a serán usados en un trabajo de investigación en la [REDACTED]. El nombre de su niño/a no será usado.

Hay poco o ningún riesgo conocido por participar. Usted y su hijo(a) tienen el derecho de retirarse del estudio en cualquier momento, sin penalidad. (La intervención para ayudar a su hijo(a) continuará; su participación en el estudio la puede terminar en cualquier momento.)

Gracias por su atención y apoyo. Si tiene preguntas o inquietudes, favor de sentirse libre para comunicarse con el maestro de su hijo(a), o con nuestra coordinadora tutora, [REDACTED].

Sinceramente,
Sra. Alampi



Winter, 2014

Dear Parents and Guardians,

This year we are working on additional interventions services to support our children. Within the normal 2 hour block of daily literacy, we have a 30 minute intervention and enrichment period.

Your child has been identified for the Helping Early Literacy through Practice (HELPS) program. This program is specially designed to help children improve their fluency and help develop better reading comprehension. We believe your child will benefit with this additional, individualized teaching. The goal is to help your child become a better reader.

Your child will receive a 1:1 session with a trained professional three times a week during the reading block. They will read passages several times, focusing on improving their accuracy and speed. The teacher will focus on errors made, and ways to improve their understanding of the passage. This means they work on re-telling. Once children reach the targeted words per minute, they then move to a new story. When you receive your child's report card, there will be a separate attachment that documents your child's progress.

Your child's results will be used in a research project at St. John Fisher College. Your child's name will not be used.

There are little to no known risks in participating in this study. You and your child have the right to withdraw from the study at any time, without penalty. (The intervention to help your child will continue; your participation in the study can end at any time.)

Thank you for your attention and support. If you have any questions or concerns, please feel free to contact your child's teacher, or our tutor coordinator, [REDACTED].

Sincerely,

Michele Liguori-Alampi
School [REDACTED] Principal

**St. John Fisher College
Institutional Review Board**

Informed Consent Form

(for use with minors)

Title of study: Home Language Literacy Development for Primary Grade Spanish-speaking English Language Learners in Dual Language Programs

Name(s) of researcher(s): Michele Liguori-Alampi

Faculty Supervisor: Dr. Jason Berman _____ Phone for further information: [REDACTED]
[REDACTED]

Purpose of study: To assess the effectiveness of a Spanish intervention program on students' fluency in native language.

Study Procedures:

All students at School 12 (the experimental elementary school) will be given an intervention screening tool, AIMsWeb RCBM; as a part of the normal operating procedures of the school. This is a reading fluency based measure. This assessment is also administered in the control school (another RCSD bilingual school). All students will be evaluated for entrance criteria to receive Response to Intervention (RtI) services. School 12 students in grades 2-4 Dual Language program that meet entrance criteria for Helping Early Literacy through Practice Strategies (HELPS), as outlined in the program selection protocols, will receive this intervention.

The program will be done by trained school intervention staff and one paraprofessional in a one-to-one setting. Ten minutes of the literacy block, three times a week, will be used to implement this program. Children selected for this study will be matched with similar (academic performance on the screening, grade level, age and gender) students in the control school.

Students in this intervention will receive the services for a five month period.

The posttest will be used to measure growth and compare fluency gains on the AIMsWeb assessment in May.

All parents will receive a report on how well their child did in the intervention.

Approval of study: This study has been reviewed and approved by the St. John Fisher College Institutional Review Board (IRB).

Place of study: [REDACTED], [REDACTED]

Length of participation: November, 2013-May 2014

Risks and benefits: The expected risks and benefits of participation in this study are explained below:

Risks- minimal. This intervention can be considered a part of the normal school operations and services provided to children in need of intervention services. Students will be removed from the reading time for ten minutes, three times a week to receive this program.

Benefits:

Students will receive one to one attention to develop their fluency skills; one area that helps with their reading comprehension.

Students will enhance their Spanish reading fluency and impact their overall reading performance in both Spanish and English

The district will identify another research-based best practice intervention tool to use to enhance Spanish-speaking students' reading fluency that can replicated in other bilingual program sites.

Method of compensation, if any:

None

Method for protecting confidentiality/privacy:

All names will be removed from the final study. All documents for the study will be locked in a secured cabinet.

Your rights:

As the parent/guardian of a research participant, you have the right to:

Have the purpose of the study, and the expected risks and benefits fully explained to you before you choose to allow your minor child to participate.

Withdraw from participation at any time without penalty.

Refuse to answer a particular question without penalty.

Be informed of appropriate alternative procedures or courses of treatment, if any, that might be advantageous to you or your minor child.

Be informed of the results of the study.

I, the parent or guardian of____, a minor____years of age, consent to his/her participation in the above-named study. I have received a copy of this form.

Print name (Parent/Guardian) Signature Date

Print name (Investigator) Signature Date

If you have any further questions regarding this study, please contact the researcher listed above appropriate referrals.

**La Universidad de St. John Fisher
Junta de Revisión Institucional**

Formulario de Consentimiento Informado
(para usarse con menores)

Título del estudio: Desarrollo de Alfabetización del Idioma en el Hogar para Estudiantes del Idioma Inglés de Habla-Hispana de Grados Primarios en Programa de Idioma Dual

Nombre(s) de investigador(es): Michele Liguori-Alampi

Supervisor de facultad: Dr. Jason Berman___Teléfono para más información: [REDACTED]
[REDACTED]

Propósito del estudio: Para evaluar la efectividad de un programa de intervención de Español sobre la fluidez de los estudiantes en el idioma nativo.

Procedimientos del estudio:

Todos los estudiantes de la Escuela 12 (la escuela elemental experimental) recibirán una herramienta de evaluación de intervención, AIMsWeb RCBM; como parte de los procedimientos de operación normal de la escuela. Esta es una medida basada en la fluidez de la lectura. Esta evaluación también es administrada en la escuela control (otra escuela bilingüe del DECR).

Todos los estudiantes serán evaluados para el criterio de entrada para recibir los servicios de Respuesta a la Intervención (RtI).

Los estudiantes de la Escuela 12 en los grados de 2-4 del programa de Idioma Dual que llenen el criterio de entrada para Ayudando a la Alfabetización Temprana a través de las Estrategias de Práctica (siglas en inglés, HELPS), según se señala en los protocolos de selección de programa, recibirán esta intervención. El programa será realizado por personal de intervención escolar capacitado y por un paraprofesional en un entorno de uno-a-uno. Se usarán diez minutos del bloque de alfabetización, tres veces por semana para implementar este programa.

Los niños seleccionados para este estudio serán pareados con estudiantes similares (rendimiento académico en la evaluación, nivel de grado, edad y género) en la escuela control.

Los estudiantes en esta intervención recibirán los servicios por un período de cinco meses.

El "posttest" se usará para medir el crecimiento y comparar la ganancia de fluidez en la evaluación AIMsWeb en mayo.

Todos los padres recibirán un informe sobre cuán bien sus hijos hicieron en la intervención.

Aprobación del estudio: Este estudio ha sido revisado y aprobado por la Junta de Revisión Institucional del Colegio St. John Fisher (IRB).

Lugar del estudio: [REDACTED], [REDACTED]
[REDACTED]

Duración de participación: Noviembre de 2013-mayo de 2014

Riesgos y beneficios: Abajo se explican los riesgos y beneficios esperados de la participación en ese estudio:

Riesgos- mínimos. Esta intervención puede ser considerada como parte de las operaciones y servicios normales de la escuela provistos para los niños que necesitan servicios de intervención. Los estudiantes serán removidos del tiempo de lectura por diez minutos, tres veces por semana para recibir el programa.

Beneficios:

Los estudiantes recibirán atención individual para desarrollar sus destrezas de fluidez; un área que los ayuda con su comprensión de la lectura.

Los estudiantes mejorarán su fluidez leyendo español e impactarán su rendimiento de lectura en general en español y en inglés.

El distrito identificará otra herramienta de intervención de mejor práctica basada en la investigación para usarla en mejorar la fluidez de lectura de los estudiantes de habla hispana que pueda ser replicada en otros lugares del programa bilingüe.

Método de compensación, si alguno:

Ninguno

Método para proteger la confidencialidad/privacidad:

Todos los nombres serán eliminados del estudio final. Todos los documentos para el estudio serán encerrados en un gabinete seguro.

Sus derechos:

Como padres/tutores de un participante de la investigación, tienen el derecho de:

Que le expliquen detalladamente el propósito del estudio, y los riesgos y beneficios esperados antes de que ustedes elija permitir que su hijo(a) menor participe.

Retirar su participación en cualquier momento sin penalidad.

Rehusar contestar una pregunta particular sin penalidad.

Ser informado de los procedimientos o cursos de tratamiento alternativos apropiados, si alguno, que pueda ser ventajoso para usted o su hijo(a) menor.

Estar informado de los resultados del estudio. Yo, padre/madre o tutor de____, un menor de _____ años de edad, doy mi consentimiento para la participación de él/ella en el estudio arriba mencionado. Recibí una copia de este formulario.

Imprima nombre (Padres/Tutor) Firma Fecha

Imprima nombre (Investigador) Firma Fecha

Si ustedes tienen alguna otra pregunta relacionada con este estudio, favor de comunicarse con el investigador anotado arriba.



Winter, 2014

Dear Parents and Guardians of _____,

The [REDACTED] is always looking for way to improve the educational outcome of our students. As a doctoral candidate at St. John Fisher College, I am conducting a research study to see if a new intervention program, Helping Early Literacy through Practice Strategies (HELPS) will improve students' fluency, and impact their comprehension.

Your child has taken a reading screening assessment, called AIMSweb, as a part of their normal school practices. You are receiving this letter because your child's results on this test matched a child in the experimental school, School 12. We will compare the test results between the two children. Your child's name and personal information will not be used nor published in the final study results.

The information gained from this study is very important and will help us provide better reading intervention programs in the future. Results from the final study will be shared with your school's principal, teachers, and parents. If proven effective, your school has the option of using this new intervention as well.

If you have any questions, please feel free to contact Michele Liguori-Alampi at [REDACTED].

Sincerely,

Michele Liguori-Alampi



Invierno, 2014

Apreciados Padres y Tutores,

Este año estamos trabajando con servicios de intervenciones adicionales para ayudar a nuestros niños. Dentro del bloque normal de 2 horas de alfabetización diaria, tenemos un período intervención y enriquecimiento de 30 minutos.

Su hijo(a) ha sido identificado para participar en el programa Ayudando a la Alfabetización Temprana a través de Estrategias de Práctica (siglas en inglés: HELPS). Este programa está especialmente diseñado para ayudar a los niños a mejorar su fluidez y ayudarles a desarrollar una mejor comprensión de la lectura. Nosotros creemos que su hijo(a) se va a beneficiar con esta enseñanza adicional, individualizada. La meta es de ayudar a que su hijo(a) se convierta en un mejor lector.

Su hijo(a) recibirá una sesión de 1:1 con un profesional entrenado tres veces a la semana durante el bloque de lectura. Ellos leerán pasajes varias veces, enfocándose en mejorar su precisión y rapidez. El maestro se enfocará en los errores hechos, y en las maneras para mejorar su entendimiento del pasaje. Esto significa que trabajan en volver a contar. Una vez los niños alcancen la meta de palabras por minuto, entonces se moverán a una nueva historia. Cuando usted reciba el informa de notas de su hijo(a), tendrá una sección adjunta que documenta el progreso de su hijo(a).

Los resultados de su niño/a serán usados en un trabajo de investigación en la Universidad de St. John Fisher. El nombre de su niño/a no será usado.

Hay poco o ningún riesgo conocido por participar. Usted y su hijo(a) tienen el derecho de retirarse del estudio en cualquier momento, sin penalidad. (La intervención para ayudar a su hijo(a) continuará; su participación en el estudio la puede terminar en cualquier momento.)

Gracias por su atención y apoyo. Si tiene preguntas o inquietudes, favor de sentirse libre para comunicarse con el maestro de su hijo(a), o con nuestra coordinadora tutora, [REDACTED].

Sinceramente,

Michele Liguori-Alampi



Student name: _____

Addressed to child at beginning of intervention:

You are getting some extra intervention help for your reading. We are using the Helping Early Literacy Through Practice Strategies (HELPS) program. Your parents have said this is OK. We will use how well you do in the program in a study.

Estas recibiendo ayuda extra de intervencion para ayudarte con tu lectura. Estamos usando el programa *Leamos para Avanzar: un programa de lectura para ninos (HELPS)*. Tus padres han dicho que esta bien con ellos. Usaremos el resultado del programa en otro estudio.

Are you OK with this?
Estas bien con esto?

Teacher signify assent: Yes _____ No _____

Teacher witness _____

Date: _____

Appendix G

Student Data Results

EXPERIMENTAL					CONTROL				
CODE	Pre	Post	Change	ROI	CODE	Pre	Post	Change	ROI
E1.1	24	39	15	1.07	C1.1	18	41	23	1.64
E1.2	31	48	17	1.21	C1.2	30	58	28	2.0
E1.3	24	44	20	1.42	C1.3	22	31	9	0.64
E1.4	22	37	15	1.07	C1.4	17	40	23	1.71
E1.5	33	44	11	0.79	C1.5	38	50	12	0.86
E2.1	56	123	67	2.03	C2.1	52	93	41	1.14
E2.2	53	114	61	1.85	C2.2	48	94	46	1.28
E2.3	53	117	64	1.94	C2.3	46	65	28	0.78
E2.4	34	89	55	1.67	C2.4	35	67	35	0.97
E2.5	27	93	66	2.00	C2.5	28	80	28	0.78
E2.6	48	61	13	0.93	C2.6	43	71	28	1.65
E2.7	58	67	9	0.64	C2.7	54	53	-1	-
E2.8	41	57	16	1.14	C2.8	42	69	27	1.59
E2.9	66	73	7	0.50	C2.9	62	68	6	0.35
E3.1	103	142	39	1.18	C3.1	97	110	13	0.36
E3.2	35	88	54	1.64	C3.2	34	83	49	1.36
E3.3	41	69	28	0.85	C3.3	34	36	2	0.06
E3.4	89	138	40	1.21	C3.4	91	108	17	0.47
E3.5	54	103	49	1.48	C3.5	53	70	17	0.47
E3.6	67	101	34	1.03	C3.6	68	69	1	0.03
E3.7	56	97	41	1.24	C3.7	64	81	17	0.47
E3.8	62	124	62	1.88	C3.8	61	68	7	0.19
E3.9	45	105	60	1.82	C3.9	44	52	8	0.22
E3.10	59	112	53	1.61	C3.10	59	87	28	0.78
E3.11	63	55	-8	0	C3.11	63	99	36	1.00
E3.12	57	119	62	1.88	C3.12	57	83	26	0.70
E3.13	45	88	43	1.30	C3.13	47	67	20	0.56