BILITERACY AND ACADEMIC ACHIEVEMENT IN A TWO-WAY BILINGUAL IMMERSION PROGRAM

Joanna Rachel McCray

California State University - San Bernardino

Follow this and additional works at: https://scholarworks.lib.csusb.edu/etd

Part of the Bilingual, Multilingual, and Multicultural Education Commons

Recommended Citation
https://scholarworks.lib.csusb.edu/etd/138

This Thesis is brought to you for free and open access by the Office of Graduate Studies at CSUSB ScholarWorks. It has been accepted for inclusion in Electronic Theses, Projects, and Dissertations by an authorized administrator of CSUSB ScholarWorks. For more information, please contact scholarworks@csusb.edu.
BILITERACY AND ACADEMIC ACHIEVEMENT IN A
TWO-WAY BILINGUAL IMMERSION PROGRAM

A Thesis
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Education:
Bilingual/Cross-Cultural

by
Joanna Rachel McCray
June 2015
BILITERACY AND ACADEMIC ACHIEVEMENT IN A TWO-WAY BILINGUAL IMMERSION PROGRAM

A Thesis
Presented to the Faculty of California State University, San Bernardino

by Joanna Rachel McCray

June 2015

Approved by:

María V. Balderrama, Ph.D., First Reader

Dr. Bárbbara Flores, Second Reader
ABSTRACT

Quantitative data examined the effectiveness of a Two Way Bilingual Immersion program on the biliteracy and academic achievement of elementary English learners in southern California. Scores from the California Standards Test (CST) for language arts and mathematics were used to compare the effects of a bilingual curriculum on Hispanic English learners and Hispanic English Only Speakers. English learners' average group scores increased significantly; average group scores for English Only Students' decreased. The Standards Test in Spanish (STS) scores indicate English learners' gains in biliteracy development. These notable academic outcomes evidence the importance of Two Way Bilingual Immersion program for English learners.
ACKNOWLEDGMENTS

Upon completion of this project, I offer my thanks to two devoted faculty members: Dr. Bárbara Flores, who encouraged me to begin the process and Dr. María Balderrama, who supported me to finish the journey.

I also am grateful for my father, Sami Marto and my mother, Dawn Mendenhall. They never enjoyed school themselves but they were always proud that I excelled at school. I can only hope that my daughter, Jazmyn, will inherit my drive and determination.

Finally, I express my gratitude to the friends that helped me get through the past seven years with their unwavering belief that I would finish, with their laughter through the tough times, and with anticipation for the culminating celebration.
# TABLE OF CONTENTS

ABSTRACT .................................................................................................................. iii

ACKNOWLEDGMENTS ................................................................................................. iv

LIST OF TABLES ........................................................................................................... viii

LIST OF FIGURES ......................................................................................................... ix

CHAPTER ONE: INTRODUCTION

General Statement of the Problem ................................................................. 1
Significance of the Thesis ...................................................................................... 3
Research Questions ................................................................................................. 5
Limitations and Delimitations .............................................................................. 6
Assumptions ............................................................................................................. 8
Definition of Terms ................................................................................................. 10

CHAPTER TWO: LITERATURE REVIEW

Introduction .............................................................................................................. 17
Bilingual Education Program Models ................................................................. 26
- Subtractive Program Models .............................................................................. 27
- Additive Program Models ................................................................................. 31
Research on Quality Two-Way Bilingual Immersion Programs .............. 34

CHAPTER THREE: DESIGN AND METHODOLOGY

The Context of This Study ......................................................................................... 47
  County .................................................................................................................... 47
  City ......................................................................................................................... 49
CHAPTER FOUR: FINDINGS

Academic Achievement on English Language Arts and Spanish Language Arts in Two-Way Bilingual Immersion .................. 63

Academic Achievement on Mathematics in Two-Way Bilingual Immersion ................................................................. 66

Comparing Scores of Two-Way Bilingual Immersion Students with Scores of Mainstream Students ..................... 68

Summary of Findings of English Learners and English Only Students ........................................................................... 72

CHAPTER FIVE: CONCLUSION....................................................... 76

Recommendations for Further Research ........................................ 78

APPENDIX A: TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS AT GREEN MEADOW 2009 AND 2010 ENGLISH LANGUAGE ARTS (ELA) CALIFORNIA STANDARDS TEST (CST) SCORES ........................................ 80

APPENDIX B: TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS AT GREEN MEADOW 2009 AND 2010 SPANISH LANGUAGE ARTS (SLA) STANDARDS TEST IN SPANISH (STS) SCORES ........................................... 82

APPENDIX C: TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS AT GREEN MEADOW 2009 AND 2010 MATHEMATICS IN ENGLISH CALIFORNIA STANDARDS TEST (CST) SCORES ........................................... 84
APPENDIX D: TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS AT GREEN MEADOW 2009 AND 2010 MATHEMATICS IN SPANISH STANDARDS TEST IN SPANISH (STS) SCORES ........................................ 86

APPENDIX E: ENGLISH LANGUAGE MAINSTREAM ENGLISH ONLY STUDENTS AT GREEN MEADOW 2009 AND 2010 ENGLISH LANGUAGE ARTS (ELA) CALIFORNIA STANDARDS TEST (CST) SCORES ........................................ 88

APPENDIX F: ENGLISH LANGUAGE MAINSTREAM ENGLISH ONLY STUDENTS AT GREEN MEADOW 2009 AND 2010 MATHEMATICS CALIFORNIA STANDARDS TEST (CST) SCORES ................................. 90

APPENDIX G: INSTITUTIONAL REVIEW BOARD APPROVAL ............... 93

REFERENCES ........................................................................................................... 94
LIST OF TABLES

Table 2.1. Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP) Theories of Language Acquisition .............................................. 24

Table 2.2. Percent of Native Language and English Language Used in Two Models of Two-Way Dual Immersion Programs K-5 ...... 32

Table 3.1. San Bernardino County Population by Ethnicity (2010) ........ 48
Table 3.2. San Bernardino City Population by Ethnicity (2010) ............... 50
Table 3.3. District Population by Ethnicity (2010) .................................. 52
Table 3.4. Student Population at Green Meadow by Ethnicity (2010) ....... 53
Table 3.5. Characteristics of Student Population at Green Meadow (2010) .............................................................................................................. 55
Table 3.6. Participants in This Study .......................................................... 56

Table 4.1. Group A – Two-Way Bilingual Immersion Average Test Scores in English Language Arts (ELA) ............... 64
Table 4.2. Group A – Two-Way Bilingual Immersion Average Test Scores in Spanish Language Arts (SLA) ............. 65
Table 4.3. Group A – Two-Way Bilingual Immersion Mathematics Test Score Averages in English and Spanish ...... 67
Table 4.4. Average Group Scores for Hispanic English Learners and Hispanic English Only on the English Language Arts California Standards Test (CST) ............................................................. 69
Table 4.5. Average Group Scores for Hispanic English Learners and Hispanic English Only on the Mathematics California Standards Test (CST) ...................................................................................... 71
Table 4.6. Comprehensive Average Test Scores for Hispanic English Learners and Hispanic English Only on the California Standards Test (CST) and the Standards Test in Spanish (STS) .............................................................................................................. 75
LIST OF FIGURES

Figure 2.1. Cummins’ Common Underlying Proficiency .............................. 26
Figure 2.2. English Learner Long-Term K-12 Academic Achievement ...... 36
Figure 2.3. Factors in Quality Bilingual Education Pyramid ...................... 41
Figure 3.1. Group A – Two-Way Bilingual Immersion English Learners’ English Proficiency Language Levels According to the California English Language Development Test (CELDT) .................................................. 58
CHAPTER ONE
INTRODUCTION

General Statement of the Problem

Language is a major factor contributing to diversity in California public schools and classrooms. A significant number of students enter school speaking a language other than English, and are identified as English learners (El's). In 2014, the California Department of Education reported 6,236,672 students, enrolled in California (K-12) schools. Approximately 1,190,407 are Spanish speaking English learners, constituting 19.09% of the total enrollment in public schools (California Department of Education, 2013a). English learners in San Bernardino County (where the study takes place) mirror the state data. The total student enrollment of San Bernardino County students is 411,583 with English learners accounting for 19.83% of students (total of 81,630 English learners (Dataquest, 2013). Ninety-four percent, or the majority of English learners identify Spanish as their native language totaling 76,349 Spanish speaking English learners in San Bernardino county (Dataquest, 2013).

Spanish speaking students have origins in one or more Spanish-speaking countries, such as Mexico, Guatemala, and Costa Rica, and will be referred to as Hispanic in this thesis. The Hispanic population in California is predicted to double from the current 9 million to 21 million by the year 2025 (U.S. Census, 2012). This growth has important implications for California schools and the
instructional programs offered to the growing student population of English learners.

Supporting English language development and the overall academic achievement of English learners is a major challenge for schools and teachers. The California Department of Education identifies two goals regarding the education of English learners: 1) English learners must acquire proficiency in English as quickly as possible; 2) English learners must meet academic grade level content standards in a reasonable amount of time (California Department of Education, 2012).

The three types of instructional programs currently used with English learners are Structured English Immersion, English Language Mainstream, and Alternative Program. The Structured English Immersion and the English Language Mainstream use English only for teaching and learning. The Alternative Program models (such as Alternative Bilingual Education and Two-Way Bilingual Immersion) utilize the home language to teach, learn English (while maintaining the native language) and academic content knowledge. Programs using the native language to learn English, academic content, and develop primary language literacy are all considered bilingual programs.

Research in bilingual education has identified that bilingual programs are the most beneficial in the maintenance of the home language, the development of English for English learners, and learning academic content (Lindholm-Leary, 2001). Therefore, many policy makers and educators attempt to close the
achievement gap by implementing various forms of bilingual programs for English learners, such as, the Alternative Bilingual Education (ABE) and the (TWBI). Each program differs in its approach, methods and results. Without quality instruction that address the specific linguistic and academic needs of English learners, significant numbers of students may be unable to meet the standards set by the national mandate of No Child Left Behind (2001) which requires all students to be academically proficient by 2014, and more recently, California Common Core State Standards. This study examines the effects of bilingual instruction in a Two-Way Bilingual Immersion on the academic achievement of Hispanic English learner’s measured by standardized state tests. Participants are elementary level students from a Two-Way Bilingual Immersion program, in a Southern California public school.

**Significance of the Thesis**

This thesis is significant and breaks ground because it utilizes standardized test scores to examine the effectiveness of a Two-Way Bilingual Immersion program. Standardized test scores, are the number one measure of individual and school achievement, and tend to drive the curriculum and federal funding due to the mandated federal policy, No Child Left Behind (2001). The findings of this study will contribute to the field of bilingual education by providing quantitative research that can extend existing qualitative research. Quantitative research will provide another perspective to further inform best practices for
English learners. Demonstrating that Two-Way Bilingual Immersion programs positively affect standardized test scores can have major implications for the selection of instructional models that districts use to teach English learners. Quantitative findings can provide meaningful and relevant data to school districts, opening more opportunities to institutions for more Two-Way Bilingual Immersion programs. Evidence that supports the use of a child’s home language to learn English and achieve academically, and does not affect test scores negatively can dispel misunderstandings or myths about how to best teach English learners.

Additionally, schools are better able to offer choices to parents who are committed to bilingualism, biliteracy, and seeking bilingual programs that promote academic achievement. The involvement of monolingual Spanish-speaking parents in schools is likely to increase because they can engage more directly in educational activities in the home language, bringing families and teachers together. Teachers working in a Two-Way Bilingual Immersion program also benefit from this data because they will have evidence of their successes, the benefits of the program, and they can engage in creating more effective strategies in teaching both languages. These high expectations can only lead to more rigorous student learning and achievement. Most importantly, students that complete a Two-Way Bilingual Immersion program, and obtain proficient test scores are being prepared and given unparalleled opportunities for an academic career leading to college graduation and future job security in a global market.
Research Questions

This thesis examines the biliteracy development (English/Spanish) of participants in a Two-Way Bilingual Immersion program and the effects of biliteracy on academic achievement. Biliteracy, the development of fluency in reading, writing, listening, and speaking in two languages, is a central aspect of a Two-Way Bilingual Immersion program. In such programs, maintaining primary language literacy skills, acquiring English literacy skills, and grade level academic achievement in content areas is the central goal to this instructional model. Using this framework, the following questions are derived using scores of Hispanic English learners from standardized tests:

a) What are the effects of Two-Way Bilingual Immersion on third grade English learners’ English and Spanish language arts standardized test scores?

b) What are the effects of Two-Way Bilingual Immersion on third grade English learners’ English and Spanish mathematics standardized test scores?

In addition, this thesis further extends current research by comparing English learners participating in a Two-Way Bilingual Immersion program with the test scores of their monolingual counterparts in an English Language Mainstream program (English only, non Two-way). Accordingly, the questions examined are:

a) How do the English language arts standardized test scores of 3rd grade bilingual students in a Two-Way Bilingual Immersion program compare to the
scores of 3rd grade monolingual English speaking students in an English Language Mainstream program?

b) How do the English mathematics standardized test scores of 3rd grade bilingual students in a Two-Way Bilingual Immersion program compare to the scores of 3rd grade monolingual English speaking students in an English Language Mainstream program?

Limitations and Delimitations

This study utilizes the standardized test scores of third grade students at Green Meadow Elementary School (name has been changed), located in a semi-urban area in Southern California. Standardized tests scores of fifteen participants in a Two-Way Bilingual Immersion program were collected during a two-year span. This sample size is one of the study’s limitations. The number of participants can be attributed to different factors. The program began with two Kindergarten classes. However, due to the high rate of mobility of students who transfer schools within the district, each proceeding grade level (grades 1, 2, 3) had one class of Two-Way Bilingual Immersion. As with many Two-Way Bilingual Immersion programs, enrolling English only students is a challenge. The majority of Green Meadow Elementary School’s English Only population is African-American and histories of racial tensions within the surrounding area between Blacks and Hispanics, tend to discourage many parents in enrolling their students in Two-Way Bilingual Immersion. The difference in languages and
cultures lead to segregation within the community, resulting in hostility, which can be observed in the documented violence in the nearby junior and high schools. These conflicts trickle down to the elementary school, affecting the school climate and enrollment of English Only students in the Two-Way Bilingual Immersion program.

Retention in the Two-Way Bilingual Immersion program can also be associated with the intertwining of socio-economic status, immigration status, and mobility rates. For example, the estimated average household income in Green Meadow Elementary School is $28,495 (Healthy San Bernardino County, 2012), and the determined poverty level for a family of four. Many families in the surrounding community average four to six members. Many are immigrant families that left their native country for a better life in the United States. However, due to the economic downturn of the U.S. economy, many immigrant families have returned to their native country because they cannot financially support their family in the United States. Also, the mobility rate of students is directly affected by their parents’ socio-economic status. When these families have a change in employment or job loss, this diminishes their income, and must relocate to find more affordable housing accommodations. Thus children are transferred to the nearby school within the new neighborhood, impacting the enrollment in schools, and participation in Two-Way Bilingual Immersion programs.
The delimitation of the study is that the standardized test scores collected were from third grade students at one school within one school district. Further research should include large samples within and across districts in order to strengthen correlations between biliteracy and academic achievement. Test scores can also be collected and compared from these same students when they take the standardized tests in future years to assess continued academic achievement in the Two-Way Bilingual Immersion at Green Meadow.

Assumptions

The following researched-based assumptions are presented in this thesis.

1. Two-Way Bilingual Immersion programs support academic achievement.
   Effectively implemented Two-Way Bilingual Immersion programs foster a biliterate student who can use two languages to master academic content as set forth by state standards. Thomas and Collier’s (2002) long-term study on academic achievement evidences that Two-way Bilingual Immersion bilingual students can score on par with monolingual peers in standardized tests.

2. Two-Way Bilingual Immersion programs do not impede the acquisition of a second language (English) by students. Effectively implemented Two-way bilingual programs utilize instruction in such a manner that the acquisition of two languages complement each other and foster academic levels of literacy skills. Biliterate students learn to use
language to properly convey meaning in many various settings. The Common Underlying Proficiency theory posited by Jim Cummins (2000) evidences that once a set of skills has been learned in one language, the skills will benefit the development of a second language. Cummins (2000) declares, "Conceptual knowledge developed in one language helps to make input in the other language comprehensible," (p. 39).

3. Learning to read and write in the home language enhances second language learning. Once a student knows how to read, a student is able to transfer the literacy skills developed in the first language to the acquisition of the second language. Students only need to learn how to read once. Reading in a second language, or English, merely requires learning a new phonological system, not the strategies on how to read (Cummins, 2000).

4. Parents choose to enroll their child in a Two-Way Bilingual Immersion program because the home language is valued, and parents seek maintenance of the home language. Also, parents choose the Two-Way Bilingual Immersion program because they understand that biliteracy does not compromise academic achievement. Parents at Green Meadow value biliteracy for academic purposes, not just for social engagement (personal communication, informal conversation with parents during Back to School Night, October 18, 2010).
5. Parents value biliteracy and voluntarily sign a Bilingual Waiver required by the state to enroll their child in a Two-Way Bilingual Immersion program. By signing the Bilingual Waiver, a parent is committing to the Two-Way Bilingual Immersion program instructional model (California Department of Education, 2012).

Definition of Terms

Leaders and policy-makers in education are constantly shifting the definitions and acronyms of common terms frequently leading to different meanings and connotations. For example, during the 1980 – 1990s, limited-English-proficient (LEP) was the acceptable identification for students who were acquiring English. However, limited-English-proficient (LEP) students are now referred to as English learners (EL). All consequential terms are listed in this section of the thesis. The definitions that follow will apply throughout this thesis in order to maintain consistent denotations and clarity in this paper.

**Alternative Program** is the California Department of Education’s term for all instructional settings that use a student’s primary language (Spanish, Chinese, for example) in the classroom to teach academic content and to acquire proficiency in English. Examples of such programs include Alternative Bilingual Education and Two-Way Bilingual Immersion. Each program varies in amount of instruction time using and preserving the home, primary, or heritage language.

**Bilingual Education** (also referred to as Alternative Program) refers to a school’s
organizational model that uses a students’ home, heritage language to help them acquire proficiency in English and to master academic content.

**Heritage Language** refers to a student’s first language acquired at home. The first language, or primary language, is considered the home language. The first language is frequently written with the short hand version, L₁. Other interchangeable terms are native language and primary language.

**Additive** describes the instructional approach that teaches a second language without eradicating the native language used by students. The second language (English) is added to the home language. This approach adds to children’s linguistic repertoire and does not take away (or subtract). Curriculum, instructional materials, and instruction are available in two languages, including the student’s primary language and English. Two-Way Bilingual Immersion is an example of an additive instructional model.

**Two-Way Bilingual Immersion (TWBI)** is an additive bilingual program because its instructional approach maintains the home language while fostering (adding) the English language. The program composition is 1/3 students who are monolingual in the mainstream language (English), 1/3 of students who are bilingual (English and Spanish), and 1/3 who are English learners or monolingual Spanish speakers. According to this model, Spanish (students’ primary language) is the instructional language used in the primary grades, K-3. Instruction in Kindergarten begins with 90% Spanish instruction and 10% of instruction in English. In 1st grade, instruction is 80% in Spanish and 20% in
English. Second grade continues with 70% of instruction in Spanish and 30% in English. Instruction in 3rd grade is 60% in Spanish and 40% in English. In the 4th and 5th grade, the language usage is balanced during instruction with 50% in Spanish and 50% in English.

**Biliterate** is demonstrating proficiency in two languages (English and Spanish) in the four domains: reading, writing, speaking, and listening. Biliteracy is taught in additive bilingual programs allowing students to use bilingual skills to master content standards in both languages. Biliteracy is the intended outcome of a successful Two-Way Bilingual Immersion program.

**Subtractive** describes an academic program that does not maintain, honor, or develop the primary language while teaching students English. The home language is not used to teach academic content. Curriculum, materials, and instruction are in one language (English), and frequently students are not allowed to use their home language during classroom interaction.

**Structured English Immersion (SEI)** is a subtractive model where instruction is overwhelmingly in English and the native language may be used occasionally to teach academic content and vocabulary. Structured English Immersion teachers are not always fluent speakers of the home language and unable to help students in transferring knowledge between languages. Structured English Immersion does not develop or maintain the heritage language. Structured English Immersion is the opposite of bilingual education, and a prevalent model in California K-12 schools.
**Alternative Bilingual Education (ABE)** is an early-exit transitional bilingual program. Early-exit refers to the grade level that the program is completed, which is generally the 3rd grade. The program composition is only English learners and this is one major distinction from Two-way bilingual programs. The heritage language is the instructional language K-3, in the primary grades with minimal English. After third grade, students are “exited” into mainstream classes using English only as the instructional language. The outcome is a subtractive program that does not foster the native language.

**English as a Second Language (ESL)** refers to the pullout of English learners from an all English classroom for a specified amount of instruction in English for a set number of days per week. Students miss instructional time in class of academic content and are taught English out of context. ESL is the least effective model of bilingual education.

**English Language Mainstream (ELM)** refers to a class where all instruction, particularly the content standards are taught only in English. A child’s home language is not used by the teacher to explain, clarify, or develop concepts, even if there are English learners in the classroom.

**English learners (EL)** are students whose primary language is a language other than English. Upon enrollment, potential English learners are identified by parent completion of a Home Language Survey. All parents indicate which languages are used in the home.
**English Only** refers to students who are monolingual English speakers whose primary language is English. English Only students are identified by parent completion of the Home Language Survey given at school enrollment.

**California English Language Development Test (CELDT)** is a standardized test administered to students identified as speaking another language other than English on the Home Language Survey. The CELDT is used to establish levels of English proficiency in reading, writing, listening, and speaking. The test’s five levels are 1) Beginning, 2) Early Intermediate, 3) Intermediate, 4) Early Advanced, and 5) Advanced. Students remain identified and labeled English learners until the reclassification requirements are met. After reclassification, students are exited from the English learner category and are considered Fluent English Proficient.

**Reclassified** is a state category to identify students who have achieved grade level proficiency in English. Students are no longer designated English learners and are reclassified as Fluent English Proficient (RFEP). Reclassification occurs when students achieve a score of 300 or above on the Language Arts portion of the California Standards Test (CST), score an overall 4 or 5 (early advanced or advanced) on the CELDT with no subtest (reading, writing, listening, and speaking sections) lower than a 3 (intermediate), and with teacher recommendation.

**Content Standards** are the specific knowledge and skills in language arts, mathematics, science, and history-social science that a student must master.
from Kindergarten to Grade 12. Standardized test scores measure a student’s mastery of the content standards, and differ between states. In California, these content standards are approved and mandated by the California State Board of Education. California’s content standards for K-12 public schools are accessible on the California Department of Education website (http://www.cde.ca.gov/be/st/). The new Common Core State Standards (CCSS) will be implemented in California in 2014 and are also accessible on the California Department of Education website (http://www.cde.ca.gov/be/st/).

**Standardized test** is a state created, mandated examination that is administered to all students in exactly the same manner each spring. Tests use a consistent system of scoring using point values. California uses the California Standards Test (CST) to rank schools and students into five performance levels including Advanced, Proficient, Basic, Below Basic, and Far Below Basic. Aligned with the new California Common Core State Standards, the new standardized test administered to students Grades 3-11 is the Smarter Balanced Assessment Consortium (SBAC), given to students in 2014.

**California Standards Test (CST)** is the annual standardized test that assesses student’s knowledge of the content standards in language arts, mathematics, science, and history-social science from Grades 2-11. The CST consists of 65 multiple-choice questions and 6 field-test questions for Grades 2 and 3, (grades of interest to this study). The CST is used to measure a student’s mastery of
content standards, to compare growth from year to year, and to rank schools within California based on student achievement.

Standards Test in Spanish (STS) is given to Hispanic English learners enrolled in a bilingual program, such as Two-Way Bilingual Immersion, where the primary language is used to teach content standards. The test parallels the content of the English California Standards Test in reading and mathematics, and is in Spanish. The Standards Test in Spanish measures a students’ mastery of content standards in Spanish and is a useful measure of a student's biliteracy level.

Performance Levels are used to rank individual students based on the points achieved on the California Standards Test or Standards Test in Spanish. The five levels include 5=Advanced, 4= Proficient 3=Basic, 2=Below Basic, 1=Far Below Basic. California's objective is for all students to achieve at proficient (score of 4) or advanced (score of 5) by the year 2014.

School Accountability Report Card (SARC) reports data from all California public schools is available to the public on the California Department of Education website. It is published annually and can be used to compare and evaluate academic achievement and a school's performance. Data includes demographics of the school population, school safety and climate for learning, standardized test scores, class size, information on teacher and staff credentials, curriculum and instruction, and financial data about the school and district.
CHAPTER TWO
LITERATURE REVIEW

Introduction

Critical events affecting the education of English learners, the types of bilingual programs available, and bilingual education research frame this literature review. To recognize the conditions of bilingual education today, the history of bilingual education is explained. The types of bilingual programs that are offered in schools are direct consequences of the policies enacted throughout history.

Historically, the federal government had played a minimal role in education. This changed during the 1960’s as federal intervention became critical in implementing social policies many states were unwilling to put in place such as school desegregation and equity in public education. The Civil Rights Act of 1964 and the Elementary and Secondary Act of 1965 (ESEA) were legislative acts leading to more federal involvement in education. The previous law banned race, sex, and national-origin discrimination and the second law, targeted the inequality in education experienced by low socio-economic children.

Under the ESEA 1965, President Lyndon B. Johnson enacted Title VII in 1968. Title VII, Bilingual Education Act, allowed for authorization of resources to limited English proficient speakers or English learners. Resources included training teachers and instructional aides, involving parents in their child’s
education, developing and providing instructional materials, and supplementing educational programs to support the acquisition of learning English. Title VII did not specify the language of instruction and the goal was unclear: were students to become bilingual or to transition to English as quickly as possible? The Elementary and Secondary Act of 1965 did not address instructional issues and focused on broader issues of equity, such as resources.

The Supreme Court’s ruling in Lau v. Nichols in 1974 remains a critical, historical event in the education of English learners. This class action suit was brought against the San Francisco School District for not providing equal access to curriculum to 1,800 Chinese-speaking students. This highlighted the fact that many schools were failing to educate non-English speakers. Lau vs. Nichols (1974) states “that school programs conducted exclusively in English denied equal access to education to students who spoke other languages” (Escamilla, 1989, para. 9). The judicial ruling stated that schools must provide non-English students with extra help so that they have equal access and opportunities to a meaningful education. Due to the ruling, the Lau Remedies were the guidelines that schools were to follow. These guidelines included “how to identify and evaluate children with limited English skills, what instructional treatments would be appropriate, when children were ready for mainstream classrooms, and what professional standards teachers should meet” (Crawford, 2004, p.113).

However, the Lau Remedies did not indicate the language of instruction for English learners, particularly the use of a child’s home language to learn English.
The reauthorization of Title VII in 1974 included some new requirements. Embedded in the amended law was the requirement to spend 15% of the monies allocated to a district to be used for in-service training for teachers. Also, students’ native languages should be used in instruction to the extent necessary if it allowed the student to progress academically. The last addition to the law was that now all limited English-speaking students could receive instructional help, regardless of socio-economic status. Students needed to learn English as soon as possible. What the courts did not determine were the instructional models that should be used and the role of the child’s home language to learn English. Should students transition to English or maintain the native language? Today this unanswered outcome remains a point of contention for many, particularly for those opposed to bilingualism in general.

In 1978, the reauthorization of the Bilingual Education Act addressed the primary language, and banned funding of language additive models of education that used the students’ home language (Stewner-Manzanares, 1988). The reauthorization of Title VII in 1984 added more amendments that did not support programs using the English learner’s native language for instruction. There were two amendments that did benefit English learners. One was an emphasis on more teacher training and the second was the required inclusion of English learner parents on advisory councils assuring families a voice in their child’s education (Stewner-Manzanares, 1988).
In 1985, under President Reagan, the Secretary of Education, William Bennett, began pushing the English-only movement within schools and across the nation. The English-only movement wanted to remove any other languages besides English from being used within schools. Eventually all bilingual programs would be terminated and all instruction would be only in English (Draper & Jiménez, 1992). By the 1988, reauthorization of Title VII funding was expanded to include “special alternative” programs using English only. Native-language instruction was targeted and a three-year limit was set on the amount of time students could be serviced using their native language (Balderrama & Díaz-Rico, 2006).

In 1991, the Ramirez study (Ramírez, Pasta, Yuen, Ramey & Billings, 1991) presented extensive data on English learners in three different language programs over an eight-year span. The programs in this study included a structured English immersion program (majority of instruction is primarily English), an early-exit bilingual program (instruction is in the native language and English until 3rd grade; students are exited into an all English classroom), and a late-exit bilingual program model (instruction is in the native language and English until the 5th grade). The report helped to highlight the implications of late-exit students having the potential to academically bypass their English-speaking peers by the 6th grade. The findings revealed that English Learners receiving quality instruction in their native language for a substantial amount of time achieve better academically than English Learners who are taught in English.
exclusively. That is, English learners benefited from primary language support to acquire academic English, and should not be placed in an all-English classroom to “sink or swim.” Ramirez’ study demonstrated that with quality bilingual instruction, English learners can succeed academically in school.

The National Research Council (1991) failed to endorse the Ramirez Study because they believed the study was flawed in its design and execution. Rossell (1992) states that the Ramirez report did not answer all the questions it was designed to answer due to its choices of programs and it did not compare achievement across programs adequately. Nonetheless, the National Research Council did support Ramirez’s conclusion that native language instruction did not have a negative impact on student’s learning English and that the primary language can have a positive impact on learning English. With this support, the reauthorization of Title VII in 1994 led to the restructuring of funding. Bilingual programs received federal monies, and the state was given more responsibility in funding Title VII proposals.

Proposition 227 (1998) crystalized the native language debate, and California voters ended bilingual education requiring schools to place English learners in a Structured English Immersion program and to teach “overwhelmingly” in English. The passing of Proposition 227 nearly eliminated all bilingual programs that were offered at schools, and today parents are required to sign a parental waiver to enroll their child in any bilingual program, including a Two-Way Bilingual Immersion program.
Title I funds are federal government monies based on the school’s percentage of low-income families. These monies are used to help low-income and low-achieving students in all areas across the curriculum. The Title I program is funded under the Elementary and Secondary Education Act (ESEA), reauthorized as the No Child Left Behind (NCLB) under President George W. Bush. No Child Left Behind mandated three regulations for education. All three regulations deal with the testing of students: 1) mandatory testing of all students in Grades 3-8; 2) use of test results to evaluate the performance of schools, 3) reporting of tests results to parents and other stakeholders. The No Child Left Behind (2001) is a federal policy mandating that all schools must assess students using a state standardized test to rank the academic achievement of students, and is presently in effect.

In California, the standardized tests used are the California Standards Test and all students are expected to score Proficient, a score of 350 or more, by 2014, regardless of their primary language or socio-economic status. The fundamental problem in assessing all students with the same test is that they are administered in English, putting English language learners at a major disadvantage. Crawford states that these tests “are unreliable ways to gauge their progress in reading or math, even for those at intermediate levels; for children who are just beginning to acquire English, they are meaningless” (2004, p. 18).
Students are tested each year and teachers are held accountable for their students’ test scores. Critics of these state mandates suggest that these strict mandates hinder the success of students’ overall school achievement because testing is now the basis for all curriculum taught. Linguistic diversity and high variability in student academic needs suggests that standardized testing is not a sound practice in education. Alfie Kohn (2011) states that standardized testing has many limitations. He writes that, “tests are designed to tell us who’s beating whom, not how well students have learned or how well teachers have taught” (Kohn, 2011, para. 19). Teachers are given scripts to follow and students are taught to rigidly follow the steps outlined. Students do not enter school with the same sets of “knowledge” (including English language skills) required to pass such tests, and predictably fail, discouraged and fall behind academically.

To combat the inequalities that English learners face in education and standardized testing, bilingual programs are a viable option. Bilingual programs are designed to address students’ linguistic needs, utilize native language as a resource, and teach English using evidence based research (Cummins & Swain, 1986; Ramirez et al., 1991; Thomas & Collier, 2002). Students in bilingual programs gain the opportunity to acquire academic skills using their home language and English, in order to close the achievement gap.

The research supporting positive outcomes of Two-Way Bilingual Immersion is growing and results tend to confirm that quality programs improve English Learners academic achievement. Researcher and language expert Jim
Cummins (2000) identified two distinctive levels of learning English relevant to English proficiency. Cummins asserts that basic interpersonal communicative skills (BICS) is conversational fluency, learned within two years, and E1’s must progress through this stage. Attaining cognitive academic language proficiency (CALP), which is competence in an academic setting, takes an English learner at least five years to master (refer to Table 2.1). Students must have enough time to learn academic language and apply it to learning content in English (Cummins & Swain, 1986). An English learner that is in the stages of conservational English, or BICS, might be able to converse with peers and adults for social needs but will not successfully function in a classroom because of the lack of academic language, the CALP. Cummins writes, “bilingual programs that strongly promote minority students’ L1 literacy skills are viable means to promote academic development in English” (Cummins, 1992, p. 95).

Table 2.1. Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP) Theories of Language Acquisition

<table>
<thead>
<tr>
<th><strong>Conversational Language</strong></th>
<th><strong>Academic Language</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>basic interpersonal</td>
<td>cognitive academic</td>
</tr>
<tr>
<td>communicative skills (BICS)</td>
<td>language proficiency (CALP)</td>
</tr>
<tr>
<td>2 years to acquire</td>
<td>5-7 years to acquire</td>
</tr>
</tbody>
</table>
Cummins’ research reveals that language skills transfer from the first language to the second language. This transfer, or common underlying proficiency (CUP) proposes that languages appear to function separately on the surface level but under the surface there are commonalities in both languages. In Figure 2.1, the Common Underlying Proficiency shows the interdependence between the two languages. The academic concepts and language taught in the primary language provide a support to learning academic vocabulary in English. According to Cummins the maintenance of the primary language “enhances the intellectual and academic resources of individual bilingual students” (Cummins, 2000, p. 38). Two-Way Bilingual Immersion programs implement these research findings utilizing the primary language to learn the second language, and acknowledge the relevance of CUPS, in instruction and development of academic vocabulary and knowledge.
Bilingual Education Program Models

Despite the opposition to bilingual education, and to bilingualism in general, linguists and educators, (in the U.S. and internationally) have continued their commitment to research examining how to best teach youth learning a second language. These studies have focused on school level programs that support both English language development, and biliteracy. This section discusses the bilingual program models currently in place in many K-12 public schools. One direct way to analyze instructional models or programs for English learners is to examine primary language usage. Is the home language used to teach and learn
academic content and for English Language Development? How is primary language used in general? Is it maintained and supported? Subtractive bilingual models do not use primary language, while additive bilingual models programs integrate the home language into all aspects of teaching and learning. Below is a more extensive explanation of both models.

**Subtractive Program Models**

Subtractive programs are bilingual programs that do not develop or maintain a student’s native language and deny the linguistic resources a child brings to the classroom. This subtractive process implies English only teaching, despite the child’s linguistic needs and evidence based research regarding language learning on acquisition (Cummins, 2000; Ramirez et al., 1991, Thomas & Collier, 2002). Research evidence suggests that subtractive programs result in a monolingual English proficient, or biliterate student (Cummins, 2000).

Another example of a subtractive program is Structured English Immersion, with all instruction and curriculum in English Only. A program that is subtractive uses the primary language for only a short time or even excludes it altogether (Soltero, 2004). Early-exit or Alternative Bilingual Education uses a child’s native language until 3rd grade. After 3rd grade students are taught in English Only. While there is variation in the degree of instruction in the native language, the underlying subtractive agenda is the same – take away, deny, and remove the child’s use of the native language linguistic repertoire. Contrary to research and
evidence, the primary language is seen as a detriment or obstacle to English language development.

**Alternative Bilingual Education (ABE).** Alternative Bilingual Education is a transitional program that uses the native language to develop primary literacy for a specific span of time until English is fully implemented. Another term used is early-exit bilingual education. The program begins in Kindergarten with 90% of instruction in Spanish and 10% in English. Each year Spanish is phased out and English is used to teach academic content and literacy. The grade that Alternative Bilingual Education (or primary language usage) is terminated varies by school site with many eliminating Spanish completely by the 3rd grade. Alternate Bilingual Education is not intended to develop biliteracy or maintain the native language. While the primary language is used briefly it is intended to produce a student proficient in English as rapidly as possible. Alternate Bilingual Education (ABE) models teach using primary language, and are subtractive programs because they do not value maintaining the home language, or promoting biliteracy. Their purpose is to transition a student from Spanish to English as soon as possible.

Early-exit from the ABE classroom tends to cause academic problems for English learners that are not ready for the transition to English Only. Crawford (2004) suggests that the longer students receive instruction in their primary language to develop academic areas, the easier the transition is to learn English proficiently. If students in an ABE class received primary language instruction
and support until the 5th grade instead of to the 3rd grade, their academic transition to English would be much more successful (Thomas & Collier, 2002).

**Structured English Immersion (SEI).** Structured English Immersion programs require all instruction in English. In SEI programs teachers use sheltered instruction (strategies that make academic content accessible to English learners) to teach and occasionally use the home language to comprehend content. The use of the native language is not encouraged or maintained. The SEI model does not require a bilingual teacher, although all teachers are now required to have basic knowledge and skills in second language acquisition.

When Thomas and Collier (2002) studied Structured English Immersion (SEI) student scores, they found that Two-Way Immersion or Late-Exit students achieved better results in reading achievement than SEI students. Structured English Immersion is an Early-Exit program and does not develop students’ primary language across grade levels. Data reveal that students were lacking academic skills when they were transitioned to English too fast and even principals changed their mind about exiting students too early from a bilingual program (Crawford, 2004). Students were able to function at the “surface levels” of English but did not have the academic skills needed to achieve at grade level. This deficit in foundational skills left students unable to achieve academically in either language because students were not proficient in the native language or in English. As stated above, when students are allowed to transition to English
using the Late-Exit model, then proficiency is reached because students have had time to fully process and learn foundational skills in their primary language and in English.

**English as a Second Language Pullout Programs (ESL).** In Mainstream classes, the program implemented is the ESL Pullout. English as a Second Language pullout refers to those Mainstream classes that are taught all in English and only one or two English learners in the class. Frequently, the teacher is unable to communicate or unskilled to teach English learners, and students are pulled out of the class for varying amounts of time for a set number of times per week. English learners are pulled out and grouped with other English learners to learn English in a rote method. While research supports the social construction of language English learners are isolated from interacting and learning from proficient English speaking students. In addition, students tend to miss academic content, such as mathematics, science, or history lessons, depending on the time of day the student is pulled out of the classroom. The pullout approach is evidenced as one of the least effective and most expensive (Balderrama & Díaz-Rico, 2006) models and approaches, not withstanding the consequences for English learners and their access to academic content.

Thomas and Collier (2002) have examined ESL pullout programs for many decades and consistently their data reveal that students participating in these models have the lowest achieving student scores because of the incomprehensible input (the academic content English learners are not able to
understand due to the language barrier) given to students. Frequently, content taught in ESL pullout is not correlated to the standards being taught in class, students lose academic content by being pulled out of class, and risk falling further and further behind. Students that participate in an English as a Second Language pullout programs can take three years more than other English learners to acquire proficiency in English (Crawford, 2004).

**Additive Program Models**

At the core of an additive bilingual program are maintenance, development, and integration of a student’s native language in all aspects of teaching and learning. Instruction is in the student’s home language in the primary grades in order to build important foundational skills while English is introduced gradually through the grades. The main goal of additive programs is to produce a biliterate proficient student literate in English and another language (usually the home language) in all four domains: speaking, listening, reading and writing.

Unlike subtractive programs, an additive program values the primary language of a student, which means that a student’s culture and identity are also valued. Students feel important because of the “funds of knowledge” that they bring to the classroom from home that contribute to their schoolwork and achievement. Additive programs are based on the research regarding language learning (Krashen, 1988), the transfer hypothesis (Cummins, 2000), and achievement outcomes (Thomas & Collier, 2002).
Two-Way Bilingual Immersion. Two-Way Bilingual Immersion is additive, and has two program models, outlined in Table 2.1 below. Two-Way Bilingual Immersion classes can be either a 50/50 or 90/10 model. A 50/50 model means that instruction is in the primary language (Spanish) for 50% of the day and the other 50% is in English. The 50/50 model remains the same throughout elementary from grades K-5. In the 90/10 model, instruction in Kindergarten begins with 90% of the day in the primary language (Spanish) and 10% in English. As the grades progress, the percentage of English will increase. For example, 1st grade would be 80/20 until 50/50 is reached in 4th grade (see Table 2.2).

Table 2.2. Percent of Native Language and English Language Used in Two Models of Two-Way Dual Immersion Programs K-5

<table>
<thead>
<tr>
<th>Percent of Time Spent in Native Language and English in a 50/50 Model</th>
<th>Percent of Time Spent in Native Language and English in a 90/10 Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades K-5</td>
<td>Grade K</td>
</tr>
<tr>
<td>50% Instruction in Spanish</td>
<td>90% Instruction in Spanish</td>
</tr>
<tr>
<td>50% Instruction in English</td>
<td>10% Instruction in English</td>
</tr>
<tr>
<td>Grade 1</td>
<td>Grade 1</td>
</tr>
<tr>
<td></td>
<td>80% Instruction in Spanish</td>
</tr>
<tr>
<td>Percent of Time Spent in Native Language and English in a 50/50 Model</td>
<td>Percent of Time Spent in Native Language and English in a 90/10 Model</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>20% Instruction in English</td>
</tr>
<tr>
<td>Grade 2</td>
<td></td>
</tr>
<tr>
<td>70% Instruction in Spanish</td>
<td></td>
</tr>
<tr>
<td>30% Instruction in English</td>
<td></td>
</tr>
<tr>
<td>Grade 3</td>
<td></td>
</tr>
<tr>
<td>60% Instruction in Spanish</td>
<td></td>
</tr>
<tr>
<td>40% Instruction in English</td>
<td></td>
</tr>
<tr>
<td>Grades 4-5</td>
<td></td>
</tr>
<tr>
<td>50% Instruction in Spanish</td>
<td></td>
</tr>
<tr>
<td>50% Instruction in English</td>
<td></td>
</tr>
</tbody>
</table>

Although, the amount of time spent in each language varies, there are commonalities between the 50/50 and 90/10 models. First, in both models, districts decide which academic subjects will be taught in each language. In quality additive programs, core academic subjects such as language arts and math are taught in the primary language (Spanish). English is taught through content lessons during Social Studies and Science. The reason that English is taught through content is that additive programs emphasize students’ acquisition
of Spanish socially through classroom interaction while also learning academic, formal Spanish resulting in full biliteracy in all four domains of the language.

For both models, the designation of the language used in an academic subject also includes fidelity to speaking only the specified language at that time. There are two methods that a school can use to keep fidelity to the language. One way is a school can choose to have two teachers in one classroom. One teacher will speak the primary language (Spanish) to the students and the other will only speak English, although both teachers might be bilingual. Another way to structure both models is to have two teachers that only speak in one language in their own classrooms and the students rotate between the two classrooms depending on the academic subject being taught. This differentiation helps the students reinforce language skills because of the necessity to communicate with each language model teacher. Additional research affecting the quality of Two-Way Bilingual Immersion programs is discussed in the next section.

Research on Quality Two-Way Bilingual Immersion Programs

What does the research suggest about key elements of a quality, effective Two-Way Bilingual Immersion program? A large-scale study by respected language experts, Thomas and Collier (2002) suggests that closing the achievement gap requires programs that are effective, well-implemented, not segregated by student language proficiency, and that students are continuously enrolled for a minimum of 5-6 years. Thomas and Collier’s 5-year study,
suggests that if these conditions are met, then English learners and Native English Speakers (English Only) can reach the 50th percentile in English reading and maintain it through 12th grade. Students consistently attending a “quality” Two-Way Bilingual Immersion program, will close their learning and achievement gaps, and will have additional benefits. These benefits include enhanced academic and linguistic competence in two languages, development of skills in collaboration and cooperation, appreciation of other cultures and languages, cognitive advantages, increased job opportunities, expanded travel experiences, lower high school dropout rates, and higher interest in attending colleges and universities.
Figure 2.2. English Learner Long-Term K-12 Academic Achievement


Figure 2.2 above represents data from a longitudinal study conducted by Thomas and Collier (2002) comparing the effectiveness of academic programs for English learners. English learners that received no services are the lowest performing group across all grade levels; however, English learners that received ESL pullout (being pulled out of the classroom for English language non-content
instruction) succeeded in primary grades but steadily declined, by the 5th grade, and by the 11th grade, English learners in ESL pullout programs are the lowest performing group. English learners that received content-based ESL and were in Early-Exit bilingual programs scored slightly better than ESL Pullout English learners but still did not attain native English performance. Two-Way Bilingual Immersion English learners attained reading scores on par with native English speakers, by the 9th grade. The data revealed that Two-way bilingual immersion English learners surpassed the Native English speakers by the 11th grade, scoring above the 60th percentile. This evidence further supports that effective Two-way bilingual immersion programs provide English learners with the tools and resources needed for academic success.

Lindholm-Leary’s research (2001) on biliteracy provides important evidence related to student proficiency in standardized testing. Her work is extensive including longitudinal and cross-sectional data that compares bilingual students and monolingual students using data from more than 20 schools to examine various types of bilingual education programs. Generally, the academic achievement of bilingual students in a Two-way bilingual program were on par with their monolingual peers in an English Language Mainstream: “Higher levels of bilingual proficiency were associated with higher levels of reading achievement” (Lindholm, 2001, p. 299). Other influences on reading achievement that support the notion that parent involvement is also critical to a student’s success were noted by Lindholm-Leary. Students that had slightly
higher achievement than peers had parents who 1) read to their child at home, 2) attended parent conferences, and 3) took their child to 2-3 cultural events a year. The more that a parent is involved in their student’s academic career, the more opportunity a student has to be academically successful.

A study by Lopez and Tashakkori (2004) conducted in a Southern U.S. Spanish-speaking school district investigated the short-term effects of a Two-Way Bilingual Immersion program on Kindergarten and first grade students. One group of students (Two-Way Bilingual Immersion) received English instruction for 70% of the day and 30% of the instruction was in Spanish during the remaining part of the day. The other group of students (Mainstream English) received 90% of instruction in English and 10% instruction in Spanish. District test scores and Scholastic Reading Inventory (an assessment that measures students’ reading levels) scores were then compared. The results showed there were no statistically significant reading gaps between Two-Way Bilingual Immersion students and Mainstream students. The bottom line is that Two-way bilingual immersion is not a detriment to academic achievement. The research concludes that Two-Way Bilingual Immersion programs can assist in improving the academic achievement gap between English learners and native English speakers in language arts.

Another study by Hofstetter (2004) compared English learners’ academic progress in a Transitional Spanish-English Program (a bilingual program that uses the primary language to teach content and transition to English but still
maintains the primary language) and English learners in a Structured English Immersion program. The Transitional Spanish-English Program described in the study began Kindergarten instruction using 70% Spanish and 30% English and ended in 5th grade with 85% of instruction in English and 15% in Spanish. This comparison study found that English learners in the Transitional Spanish-English Program performed comparably to their Structured English Immersion peers after four years of instruction in their designated program. This study supports previous research that additive models using the student’s primary language for instruction helps students to access the curriculum and perform well academically.

It is important to note that language learning is more than a linguistic activity. Language reflects cultural values, identity, self-esteem, family/community ties, and emotions. Thus, when a person’s language is intentionally subtracted this has severe, negative consequences on that individual’s or group’s sense of success, possibility, or hope. Education, language, and bilingualism affect family relationships and self-identity in students. The “Children of Immigrants Longitudinal Study” by Portes and Hao (1998) interviewed 5,000 second-generation students about their acculturation on family dynamics and personality development. The survey asked various questions about family solidarity and harmony, self-esteem, and educational aspirations on an increasing value scale correlated to positive feelings.
The results showed a benefit in self-esteem and worth. Students who are able to learn English fluently as well as maintain their heritage language leads to better achievement at home and at school. All the fluent bilingual adolescents felt a strong connection with family, had the highest sense of self-esteem, and had educational goals for their future. Students who were English monolingual or very limited bilinguals reported conflicts between themselves and family due to disrespect and non-communication. Portes and Hao’s (1998) findings are corroborated by Baker’s (2006) studies that reveal students who lose their primary language have consequences that range from not being able to communicate with family members, losing family traditions, and feeling like an outsider from both cultures.

Brisk, in *Bilingual Education: From Compensatory to Quality Schooling* (2006), affirms that if “speed” is the leading principle of teaching English this detracts students from a quality education. That is “faster” may not be “better.” Brisk argues that the expected outcome of just learning English leads to family and societal problems for students, because fundamental social relationships are not maintained or sustained when there are “language” differences. Students should receive quality schooling that focuses on expected outcomes such as “academic success; individuals who can function within their families, communities, and the larger American society; and a good command of the English Language” (Brisk, 2006, p. 14). Brisk identifies factors that are
necessities in creating quality bilingual education programs in schools using a hierarchal pyramid depicted in Figure 2.3.

Figure 2.3. Factors in Quality Bilingual Education Pyramid

At the base of the pyramid are leadership, quality personnel, clear goals, integration to the whole school, and a strong partnership with parents and the community. These key factors are important because a quality bilingual program must have a strong beginning foundation. The next level on the pyramid is the school climate. The school must be receptive in encouraging a bilingual, bicultural atmosphere in the school, teachers must know the students, and high expectations must be set along with the support needed to achieve those expectations. Curriculum and materials, instruction, and assessment comprise the next three levels on the pyramid. The curriculum must value both languages and integrate content and language skills. Teachers and students need materials that support the primary language instruction and English language development. Assessment must be authentic, monitor student progress, and drive the instructional choices. Finally, the outcomes of a quality bilingual program complete the top of the pyramid with academic achievement, language development, socio-cultural integration, and the positive impact on family and community. Brisk’s characteristics for quality bilingual education such as Two-Way Bilingual programs can lead to English learners success in school and in society.

Pérez and Torres-Guzman (1992) address the importance of qualified teachers as a critical factor of a quality Two-way bilingual program. They suggest that the goal of a well-implemented, quality bilingual program “is to develop and enrich the children’s bilingual competency and, in addition to
validating their own language and cultural heritage, to broaden their cultural repertoire” (Pérez, 1992, p. 96). Pérez studied Two-Way Bilingual Immersion teaching strategies that make language comprehensible and promote English language acquisition in the classroom. Teacher ownership of the program is another central factor. Pérez notes “the importance that every program teacher be able to articulate the main points of the program” (Pérez, 2004, p. 196).

Quality and rigor are essential elements of a Two-Way Bilingual Immersion. Nine critical features are identified by Cloud, Genesee, and Hamayan in Dual Language Instruction (2000) and must be embedded in a Two-Way Bilingual Immersion program to promote the best climate possible for biliteracy. These features include the following:

1) Parental involvement is essential. Parents that understand and truly support the program are the best advocates for bilingualism. Teachers should keep parents informed about student progress and provide materials for instruction in the home.

2) Teaching rigorous standards is important. Standards must be identified using national, state, and local standards.

3) Strong leadership is a necessity. Staff needs to be open to new ideas, methods, and strategies for teaching. There should be many opportunities for professional development.
4) Instruction needs to be developmentally appropriate. Students’
language level should be considered when introducing and
implementing lessons in both languages.

5) Student-centered instruction should be used. Curriculum should be
culturally relevant and routines should be maintained to make
students comfortable while learning both languages.

6) Integration of literacy instruction with rigorous academic instruction
is central. Students need to be actively engaged and participating in
topics across the curriculum.

7) Teachers need to be reflective. Monitoring and assessment of
teacher effectiveness as well as student self-assessment, peer-
assessment, and parental feedback should be included regularly.

8) Two-Way Bilingual Immersion programs should collaborate with
other school programs. Two-Way Bilingual Immersion program
teachers should plan and coordinate with mainstream teachers
about curriculum and assessment.

9) Classroom environment is conducive to the empowerment of both
languages by all students. Both languages should be valued and
given equal status.
Collaborating and teaming must be present in a Two-Way Bilingual Program. Families, teachers, and administrators must work together. Administrative support is essential. A teacher cannot implement a Two-way bilingual program alone. A strong administration must encourage professional development that encourages teachers to expand their capabilities and skills in the classroom. Teachers are then able to support all students in reaching rigorous standards in an interactive way while monitoring students’ progress. Teachers must communicate with parents about student progress. Parents also must be involved in their child’s education by supporting their student at home. Implementing the elements outlined above result in quality Two-Way Bilingual Immersion programs and biliterate, academically successful students.

This literature review addressed key events in the history of bilingual education, including state and federal legislation mandates currently affecting English learners. The academic success of English learners has been an incessant and urgent matter. Lau vs. Nichols (1974) decided that English learners must be given equal access to education. By 1998, Proposition 227 ended bilingual education in California with the exception of a parental waiver. Parents of English learners need to understand and choose the educational program that will best educate their child. For many students, an additive bilingual program is the best educational model for student success.

The evidence is clear: additive programs positively affect test scores and academic achievement for English learners by teaching literacy and mathematics.
using the native language and integrating the acquisition of English. Quality Two-Way Bilingual Immersion programs have rigorous academic standards in English and Spanish. Administration, teachers, and parents support each other and collaborate to achieve results, while teachers implement curriculum that is well-sequenced, engages students in rigorous activities, and values both languages in all aspects of teaching and learning. Additive programs also promote cultural heritage, self-esteem, and biliteracy. With all the necessary program elements in place, English learners can succeed!
CHAPTER THREE
DESIGN AND METHODOLOGY

The Context of This Study

Green Meadow Elementary (K-5th) is characterized by its rich ethnic and linguistic diversity. It is important to visualize the social context of Green Meadow’s students to understand the need for educational programs that offer life-long benefits to students. The following section describes the school district, and students attending Green Meadow Elementary. The social and economic status of the county and city where Green Meadow is situated is also presented to give context to the research. Ethnic and linguistic data, educational attainment, and mobility factors are discussed for the 2009-2010 school year that this study occurred.

County

Green Meadow Elementary is located in Southern California in an urban community in the county of San Bernardino, the largest county in the United States, with a population of 2,035,210. The ethnicities living in San Bernardino include African-Americans compromising 8.4% (170,700), American Indian and Alaska Native compromise 0.4% (8,523), Asians 6.1% (123,978), Hispanics 49.2% (1,001,145), Native Hawaiian and Other Pacific Islander 0.3% (5,845), some other race alone 0.3% (5,845), two or more races 2.1% (43,366), and
Whites 33.3% (677,598), (United States Census Bureau, 2010a). The population of San Bernardino County is displayed in Table 3.1.

Table 3.1. San Bernardino County Population by Ethnicity (2010)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>County Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td>170,700 (8.4%)</td>
</tr>
<tr>
<td>American Indian/ Alaska Native</td>
<td>8,523 (0.4%)</td>
</tr>
<tr>
<td>Asian</td>
<td>123,978 (6.1%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1,001,145 (49.2%)</td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Islanders</td>
<td>5,845 (0.3%)</td>
</tr>
<tr>
<td>Some Other Race Alone</td>
<td>4,055 (0.2%)</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>43,366 (2.1%)</td>
</tr>
<tr>
<td>White</td>
<td>677,598 (33.3%)</td>
</tr>
<tr>
<td><strong>Total Population</strong></td>
<td><strong>2,035,210 (100.0%)</strong></td>
</tr>
</tbody>
</table>

In 41.1% of homes, a language other than English is spoken (United States Census Bureau, 2010b). There are 21.1% foreign-born persons (United States Census Bureau, 2010c). High school graduation rates in the county are 78.2% (United States Census Bureau, 2010d). The median income is $54,090 per
household, while the per capita income is $21,332 (United States Census Bureau, 2010e). Home ownership is 61.9% for San Bernardino county residents (United States Census Bureau, 2010f). In San Bernardino County, persons that are living below poverty level are approximately 20.4% of total population (United States Census Bureau, 2010e).

City

The city of San Bernardino where Green Meadow is located has a population of 209,924. The ethnic make-up of the population in the city is African-American 14.2% (29,897), American Indian and Alaska Native 0.4% (867), Asians 3.8% (8,027), Hispanics 60.0% (125,994), Native Hawaiian and Other Pacific Islanders are 0.3% (704), some other race 0.2% (361), races of two or more 2.0% (4,097), and Whites 19.0% (39,977) (U.S Bureau, 2010a). In San Bernardino city, the minority populations, such as African American and Hispanics increased by 5.8% and 10.8%, respectively, when compared to the county population. The White population in the city showed a decrease of 14.3% when compared to the county population. Table 3.2 below presents San Bernardino’s ethnic distribution.
Table 3.2. San Bernardino City Population by Ethnicity (2010)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>City Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td>29,897 (14.2%)</td>
</tr>
<tr>
<td>American Indian/ Alaska Native</td>
<td>867 (0.4%)</td>
</tr>
<tr>
<td>Asian</td>
<td>8,027 (3.8%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>125,994 (60%)</td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Islanders</td>
<td>704 (0.3%)</td>
</tr>
<tr>
<td>Some Other Race</td>
<td>361 (0.2%)</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>4,097 (2.0%)</td>
</tr>
<tr>
<td>White</td>
<td>39,977 (19%)</td>
</tr>
<tr>
<td><strong>Total Population</strong></td>
<td><strong>209,924 (100%)</strong></td>
</tr>
</tbody>
</table>

Declines are observed in the median income of city residents, from $54,090 in the county to $38,385 in the city. The city per capita income is $14,879, a reduction of $6,453 (United States Census Bureau, 2010e). Due to the increasing number of minorities, languages other than English spoken in homes increased to 46.7% in the City of San Bernardino (United States Census Bureau, 2010b). City residents that are foreign-born also increased to 22.7% (United States Census Bureau, 2010c). The high school graduation rate also falls to 67.7%, which is below the county graduation rate of 78.2% (United States
Census Bureau, 2010d). Home ownership also shrinks from 61.9% countywide to 49.4% in the city (United States Census Bureau, 2010f). Following the decrease in all monetary categories, the households below poverty level rose to 32.4% in the City of San Bernardino as opposed to 20.4% in the County of San Bernardino (United States Census Bureau, 2010e).

**District**

Presently, the San Bernardino City Unified School District has a total enrollment of 54,514 students (Ed-Data, 2010a). The ethnicities that are represented include African-Americans at 14.9% (8,105), American Indian and Alaska Native 0.7% (367), Asians 2.1% (1163), Hispanics 70.8% (38,605), Native Hawaiian and Other Pacific Islander 0.5% (281), race not reported 1.3% (697), two or more races 0.5% (274), and Whites 9.2% (5,022) (Ed-Data, 2010a). The data in Table 3.3 reveals that Hispanics are the majority of students enrolled in the district. Another statistic is that of the 18,771 English Learners in the district, with 18,101 identified as Spanish speakers, or 96.4% (Dataquest, 2009). These data evidence the necessity for schools to address the needs of English learners and provide programs that promote English Language Development and academic content.
### Table 3.3. District Population by Ethnicity 2010

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>District Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td>8,105 students (14.9%)</td>
</tr>
<tr>
<td>American Indian/ Alaska Native</td>
<td>367 students (0.7%)</td>
</tr>
<tr>
<td>Asian</td>
<td>1163 students (2.1%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>38,605 students (70.8%)</td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Islander</td>
<td>281 students (0.5%)</td>
</tr>
<tr>
<td>Race Not Reported</td>
<td>697 students (1.3%)</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>274 students (0.5%)</td>
</tr>
<tr>
<td>White</td>
<td>5,022 students (9.2%)</td>
</tr>
<tr>
<td><strong>Total Enrollment</strong></td>
<td><strong>54,514 students (100%)</strong></td>
</tr>
</tbody>
</table>

School

In particular, Green Meadow’s student population consists of a substantial proportion of Hispanic students (67.3%) and English learners (52.8%), with most of the English learners being of Hispanic descent (California Department of Education, 2010). It is important to note that many Hispanic students are not English Learners, as their primary language is English. Asians, Filipinos, and Pacific Islanders also compromise the English Learner group (5.1%) (Ed-Data, 2010b). The next significant minority population is African-American students
African-American students are classified as monolingual English speakers. White students compromise 1.1% of the student population at Green Meadow Elementary (Ed-Data, 2010b). Table 3.4 describes the population of K-5th grade students attending Green Meadow Elementary School by ethnicity.

Table 3.4. Student Population at Green Meadow by Ethnicity (2010)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>School Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>African-American</td>
<td>131 students (23.3%)</td>
</tr>
<tr>
<td>American Indian/ Alaska Native</td>
<td>3 students (0.5%)</td>
</tr>
<tr>
<td>Asian</td>
<td>10 students (1.8%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>379 students (67.3%)</td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Islander</td>
<td>19 students (3.4%)</td>
</tr>
<tr>
<td>Race Not Reported</td>
<td>13 students (2.3%)</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>2 students (0.4%)</td>
</tr>
<tr>
<td>White</td>
<td>6 students (1.1%)</td>
</tr>
<tr>
<td>Total Enrollment</td>
<td>563 students (100%)</td>
</tr>
</tbody>
</table>
Poverty is prevalent at Green Meadow. The majority or 97.5% of Green Meadow students are from families living in poverty (California Department of Education, 2010). According to data, 547 students (97.2%) at Green Meadow receive free or reduced lunch based on parent’s income (Ed-Data, 2010b). Free or reduced lunch is a federally funded program open to all K-12 students to ensure that a student eats breakfast and lunch during school hours. Eligibility requirements include a family’s income falling below 130% to 185% of the federal poverty level of $23,050 (California Department of Education, 2013b). This means a family of four earns $29,965 to receive free lunch and $42,643 for a family of four to receive reduced lunch for the students enrolled in school (California Department of Education, 2013b). English Learners are slightly half of the school population (52.8%) at Green Meadow Elementary School (California Department of Education, 2010). Low income and language diversity are the economic and social challenges faced everyday by Green Meadow students and their families. In spite of these difficulties, educators must meet the academic needs of these students.
Table 3.5. Characteristics of Student Population at Green Meadow (2010)

<table>
<thead>
<tr>
<th>Group</th>
<th>School Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socioeconomically Disadvantaged</td>
<td>549 students (97.5%)</td>
</tr>
<tr>
<td>English learners</td>
<td>297 students (52.8%)</td>
</tr>
<tr>
<td>Students with Disabilities</td>
<td>50 students (8.9%)</td>
</tr>
<tr>
<td><strong>Total Enrollment</strong></td>
<td><strong>563 students</strong></td>
</tr>
</tbody>
</table>

Participants

Participants in this study are 3rd grade Hispanic bilingual students in a Two-Way Bilingual Immersion program and 3rd grade Hispanic monolingual students in an English Mainstream program at Green Meadow Elementary School. Students from each program were selected based on ethnicity and language characteristics pertinent to this study. Language status is determined by the students’ classification as an English learner or as an English Only student. The Home Language Survey completed by families upon enrollment determines language identification. Twelve Hispanic English Learner students were chosen from the Two-Way Bilingual Immersion program, including six males and six females. Table 3.6 summarizes the data on the two groups chosen to participate in this study.
Table 3.6. Participants in This Study

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Group A – Two-Way Bilingual Immersion students</th>
<th>Group B – English Language Mainstream students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>3rd</td>
<td>3rd</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Hispanic</td>
<td>Hispanic</td>
</tr>
<tr>
<td>Sample Size</td>
<td>12 students</td>
<td>12 students</td>
</tr>
<tr>
<td>Gender</td>
<td>6 males and 6 females</td>
<td>8 males and 4 females</td>
</tr>
<tr>
<td>English Language Status</td>
<td>classified as English Learners (bilingual)</td>
<td>classified as English Only (monolingual)</td>
</tr>
</tbody>
</table>

The initial English Language level of each student is first assigned using the California English Language Development Test (CELDT) score when students are first enrolled in a California school. The CELDT is used to determine English proficiency in speaking, reading, writing, and listening. This assessment is given annually by schools to establish and monitor students' progress in English. After the first administration of the CELDT, the student is then moved to the next level based on the completion of an English Language Portfolio that the current year teacher uses to monitor for mastery of English skills. The expected progress is one level for every year that the student is in school. For example, a student who begins schooling in Kindergarten will usually score as a Beginner and each year move one level until Reclassification criteria are met. Reclassification means that the student will then be considered fluent and proficient in English.
Using the California English Language Development Test (CELDT) scores, the English Language proficiency levels of the participants in Group A, included 8 Intermediates and 4 Early Advanced students. Intermediate level students use consistent English grammar with mistakes in verb tenses. These students can ask and answer academic questions in complete sentences using basic vocabulary. Early Advanced students will use language much like native English speakers. They will use more academic vocabulary and figurative language. Early Advanced students use verb tenses correctly and can write using descriptive details. The Two-Way Bilingual Immersion students’ English language proficiency levels are detailed in Figure 3.1.
N=12

Figure 3.1. Group A - Two-Way Bilingual Immersion English Learners’ English Proficiency Language Levels According to the California English Language Proficiency Test (CELDT)

The Hispanic English learners selected are on the expected course of progress since they have been classified English learners since Kindergarten and are now either meeting Intermediate or Early Advanced requirements. They have progressed in a timely matter and are meeting grade level expectations. For these reasons, these twelve English learners’ standardized test scores were then investigated to determine the effects of bilingual programs on academic achievement.
The second group of students selected was Hispanic students classified as monolingual English Only speakers in an English Language Mainstream program. The English Language Mainstream program had forty students enrolled. However, only twelve Hispanic students meeting the criteria of being classified as English Only speakers were chosen to participate. There were eight males and 4 females that qualified for comparison. The data on the two groups were summarized earlier in Table 3.6.

Data Collection

This section describes the procedures used to collect the data for this study. As described earlier, Green Meadow is one of the schools within the district offering both Two-Way Bilingual Immersion and English Language Mainstream programs. As an action researcher interested in examining the effects of Two-Way Bilingual Immersion on Hispanic English Learners, I followed established procedure for research by first getting permission to use student data from the Director of the Research and Technology Department at San Bernardino City Unified School District. Once approval was acquired, the required application was submitted to the Institutional Review Board at California State University, San Bernardino. The Research and Technology Department then coded student data by randomly assigning identification numbers in a spreadsheet.

Data included grade, gender, ethnicity, English language proficiency, enrollment date, reclassification date, and standardized test scores in language
arts and math for 2009 and 2010. These data collection practices are consistent with Institutional Review Board procedures and ensure that students are not harmed because all data is anonymously collected and coded. All data collected is free from internal or external threats to validity and reliability because standardized tests are handled by the state, including development, administration, scoring, and reporting.

**Data Treatment Procedures**

The standardized test scores for 3rd grade students participating in a Two-Way Bilingual Immersion and 3rd grade students in an English Language Mainstream program for 2009 and 2010 was emailed to the investigator in an Excel format with individual student data coded using a randomly assigned identification number specifically created for this study.

The data included:

- grade
- gender
- ethnicity
- district enrollment dates
- English and Spanish language proficiency levels
- English learner reclassification dates
- performance levels on standardized test scores in Language Arts and Mathematics on the Content Standards Test in English (CST)
• performance levels on standardized test scores in Language Arts and Mathematics on the Standards Test in Spanish (STS).

The following steps were taken to organize the data for analysis.

1) The randomly assigned identification number from the district was simplified by recoding the cases numerically from the beginning of the list.

2) The standardized test scores of participants in English Language Mainstream and the standardized test scores of Hispanic English Learners in Two-Way Bilingual Immersion were extracted and re-entered in an Excel sheet. This process organized the data for easier management, access, and review by the investigator.

3) Tables were created to organize the standardized test scores. English Language Arts standardized test scores of participants in English Language Mainstream were entered into their own spreadsheet as well as mathematics scores. Data from Hispanic English Learners in Two-Way Bilingual Immersion was also sorted by standardized tests into tables.

4) The average, the median, and the mode of each standardized test from 2009 and 2010 were then tabulated using the Excel function to ensure accuracy (see Appendix A, B, C, D, E).

5) The averages between test scores were then computed to determine the growth or decrease in academic achievement from 2009 to 2010 for the participants in Two-Way Bilingual Immersion and English Language Mainstream participants. For example, the 2009 average test score of
Hispanic English Learners on the California Standards Test was 280.25 points and in 2010, the average score was 290 points. This difference is noted as an increase by 9.75 points (see Appendix A).

6) Each student’s 2010 standardized test scores was compared to their 2009 standardized test scores to determine a numeric point difference in the growth (increase) or decline (decrease) between the two years of testing. For example, Case #1 from the Two-Way Bilingual Immersion program scored 315 points on the 2010 CST English Language Arts section and 293 points in 2009. This calculates to an increase or growth of 22 points (see Appendix A).
CHAPTER FOUR

FINDINGS

The findings in this section are organized around the four questions guiding this study:  a) What are the effects of Two-Way Bilingual Immersion on third graders’ English and Spanish language arts standardized test scores? b) What are the effects of Two-Way Bilingual Immersion of third graders’ English and Spanish mathematics standardized test scores? c) How do the English language arts standardized test scores of 3rd grade bilingual students in a Two-Way Bilingual Immersion program compare to the scores of 3rd grade monolingual students in an English Language Mainstream program? d) How do the English mathematics standardized test scores of 3rd grade bilingual students in a Two-Way Bilingual Immersion program compare to the scores of 3rd grade monolingual students in an English Language Mainstream program? The data will be presented for each question and then analyzed.

Academic Achievement on the English Language Arts and Spanish Language Arts in Two-Way Bilingual Immersion

What are the effects of Two-Way Bilingual Immersion on third graders’ English and Spanish language arts standardized test scores? In 2009, the average score of a Hispanic English Learners participant on the California Content Standards Test in English Language Arts (ELA) section was 280.25 scale-score points. In 2010, the average score was 290 points, a 9.75 points
increase. Group A, the Hispanic English Learners’ standardized scores in English Language Arts (ELA) is shown in Table 4.1.

Table 4.1. Group A – Two-Way Bilingual Immersion Average Test

Scores in English Language Arts (ELA)

<table>
<thead>
<tr>
<th>CA STANDARDS TEST IN ENGLISH (CST)</th>
<th>2009 2nd grade ELA</th>
<th>2010 3rd grade ELA</th>
<th>Increase in points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HISPANIC ENGLISH LEARNERS AVERAGE GROUP SCORE n=12</td>
<td>280.25</td>
<td>290</td>
<td>9.75</td>
</tr>
</tbody>
</table>

It is important to remember that the California Standards Test (CST) measures students’ performance. Test results categorize students into proficiency levels based on their performance. The points achieved establish the level; 5=Advanced (414-600 points), 4= Proficient (350-413 points) 3=Basic (300-349 points), 2=Below Basic (236-299 points), 1=Far Below Basic (150-235 points).

Data show that the average test score for the California Standards Test for English Language Arts (ELA) section was quite close to the Basic 300 points. The average test score was 10 points below Basic at 290 points. However, this can be attributed to the fact that the students are still only midway through the
Two-Way Bilingual Immersion program. Two-Way Bilingual Immersion programs focus on teaching content standards in the primary language first and then transfer learning to English as the program continues. These students have had English instruction for only 10% of the day in Kindergarten, 20% of the day in 1st grade, 30% of the day in 2nd grade and 40% of the day in 3rd grade.

On the Spanish Language Arts (SLA) section of the Standards Test in Spanish (STS), the average group score was 304.5 in 2009 and 325.8 in 2010 for Group A, the Hispanic English learners in the Two-Way Bilingual Immersion program. This was an increase of 21.3 points. Table 4.2 presents the standardized group score averages of the Two-Way Bilingual Immersion Hispanic English learners on the Standards Test in Spanish Language Arts (SLA).

Table 4.2. Group A – Two-Way Bilingual Immersion Average Test Scores in Spanish Language Arts (SLA)

<table>
<thead>
<tr>
<th>STANDARDS TEST IN SPANISH (STS)</th>
<th>2009 2nd grade SLA</th>
<th>2010 3rd grade SLA</th>
<th>Increase in points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HISPANIC ENGLISH LEARNERS AVERAGE GROUP SCORE n=12</td>
<td>304.5</td>
<td>325.8</td>
<td>21.3</td>
</tr>
</tbody>
</table>
The data reveal that Hispanic English learners in a Two-Way Bilingual Immersion program are on average scoring at a Basic performance level (score of at least 300) on the Spanish Language Arts (SLA) section of the Standards Test in Spanish in 2009 and 2010. Furthermore, the average test scores increased from 2009 to 2010, evidencing students are meeting Spanish literacy standards as well advancing in English acquisition and proficiency. The raw data scores can be referenced in Appendices A-D.

Academic Achievement on Mathematics in Two-Way Bilingual Immersion

What are the effects of Two-Way Bilingual Immersion on third graders’ English and Spanish mathematics standardized test scores? The average group score on the mathematics section of the California Standards Test (CST) in English for Group A, Hispanic English Learners in a Two-Way Bilingual Immersion program, was 272.6 points in 2009 and 332 points in 2010. Data reveal that the mathematics standardized test score averages in English showed growth in point value. The average point increase was 59.4 in English mathematics. In 2009, the average Mathematic score on the Standard Test in Spanish (STS) score was 304.7 points. The next year in 2010, the average score was 360.7 points. This was a 56 points increase.

Data show that Group A, Hispanic English Learners, are making nearly identical point improvement mathematics in both the California Standards Test (CST) in English and the Standard Test in Spanish (STS). The CST
improvement was 59.4 points and on the STS there was a 56 points increase, suggesting that mathematical concepts are being developed equally in both languages. Presented in Table 4.3 are the standardized test score averages of the Two-Way Bilingual Immersion participants on the mathematics standardized test scores averages in English and Spanish. The only difference between the two tests is the language of the test (English/Spanish), not the content.

Table 4.3. Group A – Two-Way Bilingual Immersion Mathematics Test Score Averages in English and Spanish

<table>
<thead>
<tr>
<th>CA STANDARDS TEST IN ENGLISH (CST)</th>
<th>2009 2nd grade MATH</th>
<th>2010 3rd grade MATH</th>
<th>Increase in points</th>
</tr>
</thead>
<tbody>
<tr>
<td>HISPANIC ENGLISH LEARNERS AVERAGE GROUP SCORE</td>
<td>272.6</td>
<td>332</td>
<td>59.4</td>
</tr>
<tr>
<td>n=12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STANDARDS TEST IN SPANISH (STS)</td>
<td>2009 2nd grade MATH</td>
<td>2010 3rd grade MATH</td>
<td>Increase in points</td>
</tr>
<tr>
<td>HISPANIC ENGLISH LEARNERS AVERAGE GROUP SCORE</td>
<td>304.7</td>
<td>360.7</td>
<td>56</td>
</tr>
<tr>
<td>n=12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Comparing Scores of Two-Way Bilingual Immersion Students with Scores of Mainstream Students

How do the English language arts standardized test scores of 3rd grade bilingual students in a Two-Way Bilingual Immersion program compare to the scores of 3rd grade monolingual students in an English Language Mainstream program? On the English Language Arts (ELA) section, Group A, the Hispanic bilingual students, average group score was 280.25 points in 2009 and 290 points in 2010. The data reveal that in 2009, Group B, the Hispanic monolingual English students, scored an average of 301.8 points on the English Language Arts (ELA) section of the California Standards Test (CST). In 2010, the Hispanic monolingual English students scored 296.4 points on the English Language Arts (ELA) section of the California Standards Test (CST). Table 4.4 displays the standardized test score averages for both groups on the English Language Arts section (ELA) of the California Standards Test (CST).
Table 4.4. Average Group Scores for Hispanic English Learners and Hispanic English Only on the English Language Arts California Standards Test (CST)

<table>
<thead>
<tr>
<th>CST AVERAGE GROUP SCORES IN ENGLISH</th>
<th>2009 2nd grade ELA</th>
<th>2010 3rd grade ELA</th>
<th>Points difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP A HISPANIC ENGLISH LEARNERS AVERAGE GROUP SCORE n=12</td>
<td>280.25</td>
<td>290</td>
<td>9.75</td>
</tr>
<tr>
<td>GROUP B HISPANIC ENGLISH ONLY AVERAGE GROUP SCORE n=12</td>
<td>301.8</td>
<td>296.4</td>
<td>-5.4</td>
</tr>
<tr>
<td>Points difference</td>
<td>21.55</td>
<td>6.4</td>
<td></td>
</tr>
</tbody>
</table>

Comparing the 2009 test scores helps understand which group of students are achieving better academically, data reveal that Group B, the Hispanic English Only students in Mainstream, are scoring slightly higher than Group A, the Hispanic English learners in Two-Way Bilingual Immersion program, since their average is above 300 (301.8), which is the Basic level according to the CST. Also, seen is a 21.55 difference of points in the 2009 English Language Arts section of the CST. The Hispanic English Only students in an English Language Mainstream program scored a group average of 301.8 and the Hispanic English learners in Two-Way Bilingual Immersion program scored 280.25. The 21.55 points difference seems to show that Group B is performing better than Group A,
however, Group A, the Hispanic English learners, is not that significantly below the Basic level of 300 points. Group A scored 280.25 points in 2009 and 290 points in 2010.

Additionally, in 2010, Group A, the Hispanic English learners, is beginning to close the average difference from 21.55 to 6.4 points between the two groups on the English Language Arts section of the CST. This is partly due to two main factors. The first being the 9.75 points increase by Group A on the CST to 290 points and the second being the 5.4 points decrease by Group B, the Hispanic English Only students, to 296.4 points. Group B, the Hispanic English Only students were 1.8 points above Basic in 2009, but fell below Basic in 2010 with 296.4 points. Due to the decrease in points, it may be inferred that Group B is not sustaining academic growth to reach proficiency on the California Standards Test (CST) even though having only been taught using the English language. To be proficient, a score of 350 points is required.

When years of acquiring English are considered, then Group A, the Hispanic English learners performed adequately being that only a percentage of their class is taught in English. Curriculum taught in English has increased from 10% in Kindergarten to 40% in 3rd grade. According to a long-term study by Lindholm-Leary (2001), Two-Way Bilingual Immersion students should be on par with peers by the 5th grade. Green Meadow Elementary Two-Way Bilingual Immersion students are progressing adequately since they are in 3rd grade and according to research, two more years of instruction will help them attain peer
achievement levels. In 2010, the English Language Arts (ELA) average group scores were 290 points for Group A English learners and 296.4 for Group B English monolingual students. Hispanic English learners in Two-Way Bilingual Immersion are 6.4 points from being on par with the English Language Mainstream students in English.

In mathematics, the California Standards Test (CST) reveals that, Group B, (English Only students) average group score in 2009 was 312.9 points and in 2010, the mathematics average group score was 315.6 points. The average group score for Group A, the English learners in Two-Way Bilingual Immersion, was 272.6 in 2009 and 332 points in 2010 on the mathematics section of the CST. Table 4.5 summarizes the data for both groups.

Table 4.5. Average Group Scores for Hispanic English Learners and Hispanic English Only on the Mathematics California Standards Test (CST)

<table>
<thead>
<tr>
<th>CST AVERAGE GROUP SCORES IN ENGLISH</th>
<th>2009 2nd grade MATH</th>
<th>2010 3rd grade MATH</th>
<th>Points difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP A HISPANIC ENGLISH LEARNERS AVERAGE GROUP SCORE n=12</td>
<td>272.6</td>
<td>332</td>
<td>59.4</td>
</tr>
<tr>
<td>GROUP B HISPANIC ENGLISH ONLY AVERAGE GROUP SCORE n=12</td>
<td>312.9</td>
<td>315.6</td>
<td>2.7</td>
</tr>
<tr>
<td>Points difference</td>
<td>40.3</td>
<td>16.4</td>
<td></td>
</tr>
</tbody>
</table>
In 2009, data reveal the average group point difference of 40.3 points placing Group B above Group A in the mathematics section of the CST. However, the next year in 2010, the average group difference was 16.4 points but it was Group A, the Hispanic English learners in Two-Way Bilingual Immersion, who were 16.4 points greater than Group B, Hispanic English Only students in Mainstream. This is due to the 59.4 points increase by Group A, Hispanic English learners, from 272.6 points in 2009 to 332 in 2010. Group B, English Only students had an increase of 2.7 points in their average score. Data show that Group A, the Hispanic English learners, are consistently increasing test scores and closing the achievement gap between English Only peers in Mathematics.

Summary of Findings of English Learners and English Only students

The findings display positive outcomes in English Language Development and Mathematics for Hispanic English learners and in the Two-Way Bilingual Immersion program. Findings from Green Meadow’s program, support previous bilingual research by numerous experts (Brisk 2006, Cummins 2000, Pérez 2004) asserting students in a quality dual immersion program will achieve academic success in English, when their primary language skill is developed and used in the classroom. The data illustrate support previous findings (see Brisk 2006; Crawford 2004; Pérez 2004; Cummins 2000) and that the English test scores from participants in a Two-Way Bilingual Immersion program correlate to the Spanish test scores in a positive manner.
On the Standards Test in Spanish Language Arts (SLA), the average score was Basic level with 304.5 points in 2009 and with an increase to 325.8 (see Table 4.2). This increase is significant because it suggests that if scores rise in Spanish each year, then scores in English can be expected to increase until students are Proficient by 5th grade. This increase can be viewed in the 2009 English Language Arts average score of 280.3 points to 290 points in 2010 (see Table 4.1). Similarly, the Spanish Mathematics average score increased 56 points from 2009 to 2010 and this led to the English mathematics average test score rising 59.4 points in 2010 (see Table 4.3). This Green Meadow data supports research indicating that when Spanish academic content is comprehended, this knowledge transfers to mastery in English academic content. Individual test scores of Hispanic English learners in Two-Way Bilingual Immersion confirm that an increase in Spanish Language Arts and Spanish Mathematics had a positive effect on the English Language Arts (ELA) and Mathematics section of the California Standards Test. It can be inferred that the Hispanic English learners in Two-Way Bilingual Immersion are advancing towards becoming proficient in English as demonstrated by the increases in academic achievement on standardized testing. Individual test scores are located in the Appendices.

The Hispanic English Only students in the English Language Mainstream program had scores that decreased from 301.8 points in 2009 to 296.4 points in 2010 on the English Language Arts (ELA) section (see Table 4.4) and had
minimal growth from 312.9 points to 315.6 points on the Mathematics section of the California Standards Test (see Table 4.5). The decrease and stagnancy of test score averages may be attributed to the loss of the home language across generations. Loss of primary language is detrimental to culture and identity and affects academics (Cummins, 2000). Subtractive education does not allow for biliteracy and its multiple benefits because English is the only academic language used in the classroom.

Tables 4.6 below illustrates that as Spanish proficiency is developed and maintained, the benefits include advancements in English proficiency and academic achievement. During 2009 and 2010 Hispanic English learners in Two-Way Bilingual Immersion increased in point growth and achievement on the California Standards Test (CST) as well as the Standards Test in Spanish (STS), and the significant variable is primary language instruction.
Table 4.6. Comprehensive Average Test Scores for Hispanic English Learners and Hispanic English Only on the California Standards Test (CST) and the Standards Test in Spanish (STS)

<table>
<thead>
<tr>
<th>CST AVERAGE SCORES IN ENGLISH</th>
<th>2009 2nd grade ELA</th>
<th>2010 3rd grade ELA</th>
<th>2009 2nd grade MATH</th>
<th>2010 3rd grade MATH</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP A HISPANIC ENGLISH LEARNERS AVERAGE GROUP SCORE n=12</td>
<td>280.25</td>
<td>290</td>
<td>272.6</td>
<td>332</td>
</tr>
<tr>
<td>GROUP B HISPANIC ENGLISH ONLY AVERAGE GROUP SCORE n=12</td>
<td>301.8</td>
<td>296.4</td>
<td>312.9</td>
<td>315.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STANDARDS TEST IN SPANISH (STS)</th>
<th>2009 2nd grade SLA</th>
<th>2010 3rd grade SLA</th>
<th>2009 2nd grade MATH</th>
<th>2010 3rd grade MATH</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP A HISPANIC ENGLISH LEARNERS AVERAGE GROUP SCORE n=12</td>
<td>304.5</td>
<td>325.8</td>
<td>304.7</td>
<td>360.7</td>
</tr>
</tbody>
</table>
CHAPTER FIVE
CONCLUSION

The data from this thesis supports previous research about Two-Way Bilingual Immersion programs being the most beneficial program for English learners’ academic achievement (Lindholm-Leary, 2001). Research shows that bilingual students who are in a quality Two-Way Bilingual Immersion program, such as Green Meadow, can academically outscore or perform as well as students who are monolingual (Lindholm-Leary, 2001). Students in bilingual programs become biliterate in the four domains of reading, writing, speaking, and listening. The home language is maintained as the English language is acquired. Both languages are given prestige at home and at school leading to a student who is achieving academically as well as socially.

Green Meadow’s Two-way bilingual program supports academic achievement on standardized tests by Hispanic English learners. The Hispanic English learners in the Two-Way Bilingual Immersion program displayed 9.75 points growth in English Language Arts and 59.4 points in Mathematics on the California Standards Test (CST) from 2009 to 2010. However, the Hispanic English Only students in an English Mainstream program did not show growth in English Language Arts. There was a decline of 5.4 points in English Language Arts and a minute growth of 2.7 points in Mathematics.
In addition to the English academic achievement that the Hispanic English learners in Two-Way Bilingual Immersion program displayed in the data, academic achievement in biliteracy is also apparent in Group A. Growth is seen in the Hispanic English learners standardized test scores on the Standards Test in Spanish (STS). On the Spanish Language Arts section of the test, Hispanic English learners grew 21.3 points. Students also increased 56 points on the Spanish Mathematics section from 2009 to 2010. This increase gave students an average group score of 360.7 points. This data suggest that students are learning content standards in Spanish from a level that is Basic, the 300 point value, to Proficient with 350 or more points on standardized tests.

In closing, this thesis presents data supporting the claim that Hispanic English learners in a Two-Way Bilingual Immersion program can score as well as Hispanic English Only students in an English Mainstream program. Bilingual education is the central factor in advancing English learners. The native language should be used first to teach literacy skills and then used to teach English literacy skills. Administrators, parents, and teachers need to understand the benefits of Two-Way Bilingual Immersion program and the academic achievement that is associated with using the primary language to teach literacy skills and content standards.
Recommendations for Further Research

This thesis details the standardized group test scores for Hispanic English learners in a Two-Way Bilingual Immersion program. Data showed that English learners improved their tests scores from 2009 to 2010 on the California Standards Test (CST). Students raised test scores on both the English Language Arts and Mathematics sections. These students also improved on the Standards Test in Spanish (STS), in both sections. However, there is further research about academic achievement and biliteracy of Hispanic English learners in Two-Way Bilingual Immersion programs that is needed. The following are suggestions that could substantiate and further the necessity of bilingual education and teaching in the primary language in order for Hispanic English learners to attain the best education.

1) The study can be replicated with a larger sample of students from both programs. Hispanic English learners in a Two-way bilingual program and Hispanic English Only in an English Mainstream program can be studied from a school that has a large enrollment of both groups.

2) Collecting data for a longitudinal study can extend the study. Standardized test scores from the same group of students can be gathered for the 2011, 2012, and 2013 school years. Test scores will further demonstrate if growth was continued in academic achievement and biliteracy.
3) This study can also be modified to include students of different ethnicities. Instead of the comparison of Hispanic English learners to Hispanic English Only students, students that are in Two-way bilingual programs and English Mainstream that are African-American can also be compared to each other and then to Hispanic students. This may contribute further research to the benefits of bilingual education to English learners as well as English Only students.

This thesis contributes to the field of additive bilingual education program models, specifically Two-Way Bilingual Immersion. The data substantiate that bilingual education develops biliteracy and promotes academic achievement of student participants.
APPENDIX A

TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS

AT GREEN MEADOW 2009 AND 2010

ENGLISH LANGUAGE ARTS (ELA)

CALIFORNIA STANDARDS TEST

(CST) SCORES
APPENDIX A

TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS
AT GREEN MEADOW 2009 AND 2010
ENGLISH LANGUAGE ARTS (ELA)
CALIFORNIA STANDARDS TEST
(CST) SCORES

<table>
<thead>
<tr>
<th>Case #</th>
<th>2009 ELA CST (2ND GRADE)</th>
<th>2010 ELA CST (3RD GRADE)</th>
<th>POINT DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PERFORMANCE LEVEL</td>
<td>SCALE SCORE</td>
<td>PERFORMANCE LEVEL</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>293</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>328</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>346</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>228</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>247</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>289</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>228</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>331</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>233</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>286</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
<td>307</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>247</td>
<td>2</td>
</tr>
<tr>
<td>AVERAGE</td>
<td></td>
<td>280.25</td>
<td></td>
</tr>
<tr>
<td>MEDIAN</td>
<td></td>
<td>287.5</td>
<td></td>
</tr>
</tbody>
</table>

Performance Levels are used to rank students by scale score. The five levels are 5=Advanced, 4= Proficient, 3=Basic, 2=Below Basic, 1=Far Below Basic. California’s objective is for all students to achieve at proficient or advanced level.
APPENDIX B

TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS

AT GREEN MEADOW 2009- AND 2010

SPANISH LANGUAGE ARTS (SLA)

STANDARDS TEST IN SPANISH

(STS) SCORES
APPENDIX B

TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS
AT GREEN MEADOW 2009 AND 2010
SPANISH LANGUAGE ARTS (SLA)
STANDARDS TEST IN SPANISH
(STS) SCORES

<table>
<thead>
<tr>
<th>Case #</th>
<th>2009 SLA STS GRADE</th>
<th>PERFORMANCE LEVEL</th>
<th>SCALE SCORE</th>
<th>2010 SLA STS GRADE</th>
<th>PERFORMANCE LEVEL</th>
<th>SCALE SCORE</th>
<th>POINT DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>3</td>
<td>342</td>
<td>3</td>
<td>3</td>
<td>349</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>3</td>
<td>342</td>
<td>4</td>
<td>4</td>
<td>358</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>3</td>
<td>346</td>
<td>4</td>
<td>4</td>
<td>371</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>2</td>
<td>252</td>
<td>1</td>
<td>1</td>
<td>227</td>
<td>-25</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>2</td>
<td>244</td>
<td>2</td>
<td>2</td>
<td>294</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>1</td>
<td>240</td>
<td>3</td>
<td>3</td>
<td>334</td>
<td>94</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1</td>
<td>227</td>
<td>3</td>
<td>3</td>
<td>305</td>
<td>78</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>4</td>
<td>374</td>
<td>4</td>
<td>4</td>
<td>362</td>
<td>-12</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>2</td>
<td>252</td>
<td>2</td>
<td>2</td>
<td>264</td>
<td>12</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>3</td>
<td>312</td>
<td>3</td>
<td>3</td>
<td>323</td>
<td>11</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
<td>3</td>
<td>322</td>
<td>3</td>
<td>3</td>
<td>341</td>
<td>19</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>2</td>
<td>298</td>
<td>4</td>
<td>4</td>
<td>381</td>
<td>83</td>
</tr>
<tr>
<td>AVERAGE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>304.5</td>
</tr>
<tr>
<td>MEDIAN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>305</td>
</tr>
</tbody>
</table>

Performance Levels are used to rank students by scale score. The five levels are 5=Advanced, 4=Proficient, 3=Basic, 2=Below Basic, 1=Far Below Basic. California’s objective is for all students to achieve at proficient or advanced level.
APPENDIX C

TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS
AT GREEN MEADOW 2009 AND 2010 MATHEMATICS
IN ENGLISH CALIFORNIA STANDARDS
TEST (CST) SCORES
## APPENDIX C

**TWO-WAY BILINGUAL IMMERSION** ENGLISH LEARNERS
AT GREEN MEADOW 2009 AND 2010 **MATHEMATICS IN ENGLISH** CALIFORNIA STANDARDS TEST (CST) SCORES

<table>
<thead>
<tr>
<th>Case #</th>
<th>2009 MATH CST (2ND GRADE)</th>
<th>PERFORMANCE LEVEL</th>
<th>SCALE SCORE</th>
<th>2010 MATH CST (3RD GRADE)</th>
<th>PERFORMANCE LEVEL</th>
<th>SCALE SCORE</th>
<th>POINT DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>3</td>
<td>314</td>
<td>3</td>
<td>3</td>
<td>348</td>
<td>34</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>2</td>
<td>291</td>
<td>3</td>
<td>3</td>
<td>312</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>3</td>
<td>339</td>
<td>5</td>
<td>5</td>
<td>471</td>
<td>132</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>1</td>
<td>216</td>
<td>2</td>
<td>2</td>
<td>298</td>
<td>82</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>2</td>
<td>255</td>
<td>3</td>
<td>3</td>
<td>303</td>
<td>48</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>2</td>
<td>268</td>
<td>3</td>
<td>3</td>
<td>332</td>
<td>64</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>2</td>
<td>259</td>
<td>3</td>
<td>3</td>
<td>317</td>
<td>58</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>2</td>
<td>295</td>
<td>3</td>
<td>3</td>
<td>327</td>
<td>32</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>1</td>
<td>176</td>
<td>1</td>
<td>1</td>
<td>213</td>
<td>37</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>3</td>
<td>300</td>
<td>4</td>
<td>4</td>
<td>386</td>
<td>86</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>2</td>
<td>295</td>
<td>3</td>
<td>3</td>
<td>317</td>
<td>22</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>2</td>
<td>263</td>
<td>4</td>
<td>4</td>
<td>360</td>
<td>97</td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td></td>
<td><strong>272.6</strong></td>
<td></td>
<td><strong>332</strong></td>
<td></td>
<td></td>
<td><strong>59.4</strong></td>
</tr>
<tr>
<td><strong>MEDIAN</strong></td>
<td></td>
<td><strong>279.5</strong></td>
<td></td>
<td><strong>322</strong></td>
<td></td>
<td></td>
<td><strong>53</strong></td>
</tr>
</tbody>
</table>

Performance Levels are used to rank students by scale score. The five levels are 5=Advanced, 4=Proficient, 3=Basic, 2=Below Basic, 1=Far Below Basic. California's objective is for all students to achieve at proficient or advanced level.
APPENDIX D

TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS
AT GREEN MEADOW 2009 AND 2010 MATHEMATICS
IN SPANISH STANDARDS TEST IN
SPANISH (STS) SCORES
APPENDIX D

TWO-WAY BILINGUAL IMMERSION ENGLISH LEARNERS AT GREEN MEADOW 2009 AND 2010 MATHEMATICS IN SPANISH STANDARDS TEST IN SPANISH (STS) SCORES

<table>
<thead>
<tr>
<th>Case #</th>
<th>PERFORMANCE LEVEL</th>
<th>SCALE SCORE</th>
<th>PERFORMANCE LEVEL</th>
<th>SCALE SCORE</th>
<th>POINT DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>335</td>
<td>4</td>
<td>376</td>
<td>41</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>325</td>
<td>4</td>
<td>406</td>
<td>81</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>372</td>
<td>5</td>
<td>458</td>
<td>86</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>212</td>
<td>2</td>
<td>274</td>
<td>62</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>302</td>
<td>3</td>
<td>321</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>311</td>
<td>4</td>
<td>393</td>
<td>82</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>293</td>
<td>4</td>
<td>371</td>
<td>78</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>297</td>
<td>4</td>
<td>356</td>
<td>59</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>229</td>
<td>2</td>
<td>269</td>
<td>40</td>
</tr>
<tr>
<td>12</td>
<td>3</td>
<td>320</td>
<td>4</td>
<td>413</td>
<td>93</td>
</tr>
<tr>
<td>14</td>
<td>2</td>
<td>288</td>
<td>3</td>
<td>325</td>
<td>37</td>
</tr>
<tr>
<td>15</td>
<td>4</td>
<td>372</td>
<td>4</td>
<td>366</td>
<td>-6</td>
</tr>
</tbody>
</table>

AVERAGE 304.7 360.7 56
MEDIAN 306.5 368.5 60.5

Performance Levels are used to rank students by scale score. The five levels are 5=Advanced, 4=Proficient, 3=Basic, 2=Below Basic, 1=Far Below Basic. California's objective is for all students to achieve at proficient or advanced level.
APPENDIX E

ENGLISH LANGUAGE MAINSTREAM ENGLISH ONLY STUDENTS AT GREEN MEADOW 2009 AND 2010

ENGLISH LANGUAGE ARTS (ELA)

CALIFORNIA STANDARDS TEST (CST) SCORES
APPENDIX E

ENGLISH LANGUAGE MAINSTREAM ENGLISH ONLY
STUDENTS AT GREEN MEADOW 2009 AND 2010
ENGLISH LANGUAGE ARTS (ELA)
CALIFORNIA STANDARDS TEST (CST) SCORES

<table>
<thead>
<tr>
<th>CASE #</th>
<th>2009 ELA CST (2ND GRADE)</th>
<th>2010 ELA CST (3RD GRADE)</th>
<th>POINT DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PERFORMANCE LEVEL</td>
<td>SCALE SCORE</td>
<td>PERFORMANCE LEVEL</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>282</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>317</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>263</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>314</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>2</td>
<td>263</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
<td>317</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>3</td>
<td>328</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>296</td>
<td>3</td>
</tr>
<tr>
<td>23</td>
<td>1</td>
<td>211</td>
<td>1</td>
</tr>
<tr>
<td>25</td>
<td>1</td>
<td>233</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>4</td>
<td>358</td>
<td>3</td>
</tr>
<tr>
<td>28</td>
<td>5</td>
<td>440</td>
<td>4</td>
</tr>
</tbody>
</table>

**AVERAGE** 301.8 296.4 -5.41

**MEDIAN** 305 290.5 -4.5

Performance Levels are used to rank students by scale score. The five levels are 5=Advanced, 4=Proficient 3=Basic, 2=Below Basic, 1=Far Below Basic. California's objective is for all students to achieve at proficient or advanced level.
APPENDIX F

ENGLISH LANGUAGE MAINSTREAM ENGLISH ONLY

STUDENTS AT GREEN MEADOW 2009 AND 2010

MATHEMATICS CALIFORNIA STANDARDS TEST (CST) SCORES
Performance Levels are used to rank students by scale score. The five levels are 5=Advanced, 4= Proficient 3=Basic, 2=Below Basic, 1=Far Below Basic. California's objective is for all students to achieve at proficient or advanced level.
APPENDIX G

INSTITUTIONAL REVIEW BOARD APPROVAL
November 05, 2010

Ms. Joanna McCray
c/o: Prof. Maria Balderrama
Department of Education – Language, Literacy and Culture
California State University
5500 University Parkway
San Bernardino, California 92407

Dear Ms. McCray:

Your application to use human subjects, titled, “A Case Study of Dual Immersion Instruction and Standardized Test Scores” has been reviewed and approved by the Chair of the Institutional Review Board (IRB) of California State University, San Bernardino and concurs that your application meets the requirements for exemption from IRB review Federal requirements under 45 CFR 46. As the researcher under the exempt category you do not have to follow the requirements under 45 CFR 46 which requires annual renewal and documentation of written informed consent which are not required for the exempt review category. However, exempt status still requires you to attain consent from participants before conducting your research.

The CSUSB IRB has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval notice does not replace any departmental or additional approvals which may be required.

Although exempt from federal regulatory requirements under 45 CFR 46, the CSUSB Federal Wide Assurance does commit all research conducted by members of CSUSB to adhere to the Belmont Commission’s ethical principles of respect, beneficence and justice. You must, therefore, still assure that a process of informed consent takes place, that the benefits of doing the research outweigh the risks, that risks are minimized, and that the burden, risks, and benefits of your research have been justly distributed.

You are required to do the following:

1) Protocol Change: Protocol changes must be submitted to the IRB for approval (no matter how minor) before implementing in your prospectus/protocol. Protocol Change Form is on the IRB website.

2) If any adverse events/serious adverse/unanticipated events are experienced by subjects during your research. Form is on the IRB website.

3) And, when your project has ended.

Failure to notify the IRB of the above, emphasizing items 1 and 2, may result in administrative disciplinary action.

If you have any questions regarding the IRB decision, please contact Michael Gillespie, IRB Compliance Coordinator. Mr. Michael Gillespie can be reached by phone at (909) 537-7588, by fax at (909) 537-7028, or by email at mgillesp@csusb.edu. Please include your application identification number (above) in all correspondence.

Best of luck with your research.

Sincerely,

Sharon Ward, Ph.D.
Chair
Institutional Review Board

SW/ing

cc: Prof. Maria Balderrama, Department of Education – Language, Literacy and Culture

909.537.7588 • fax: 909.537.7028 • http://irb.csusb.edu/
5500 UNIVERSITY PARKWAY, SAN BERNARDINO, CA 92407-2393

The California State University • Bakersfield • Channel Islands • Chico • Dominguez Hills • East Bay • Fresno • Fullerton • Humboldt • Long Beach • Los Angeles • Maritime Academy • Monterey Bay • Northridge • Pomona • Sacramento • San Bernardino • San Diego • San Francisco • San Jose • San Luis Obispo • San Marcos • Sonoma • Stanislaus
REFERENCES

Tonawanda, New York: Multilingual Matters Ltd.


Project GLAD. (2015). National Data – Remedial v. Enrichment Models Long-Term Academic Achievement of ELLs. [OCDE PowerPoint]. Retrieved from [http://www.ocde.us/ProjectGLAD/Pages/Resources.aspx](http://www.ocde.us/ProjectGLAD/Pages/Resources.aspx)


